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Vol. II

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1942

No. 299

JERSEY CENTRAL POWER & LIGHT COMPANY,
PETITIONER,

vs.

FEDERAL POWER COMMISSION

No. 329

NEW JERSEY POWER & LIGHT COMPANY,
PETITIONER,

vs.

FEDERAL POWER COMMISSION

ON WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT

PETITIONS FOR CERTIORARI FILED {AUGUST 13, 1942.
AUGUST 22, 1942.

CERTIORARI GRANTED OCTOBER 12, 1942.

TRANSCRIPT OF RECORD
VOLUME II.

IN THE

United States Circuit Court of Appeals

For the Third Circuit

No. 7256 October Term, 1939

JERSEY CENTRAL POWER & LIGHT COMPANY

Petitioner

v.

FEDERAL POWER COMMISSION

Respondent

No. 7257 October Term, 1939

NEW JERSEY POWER & LIGHT COMPANY

Petitioner

v.

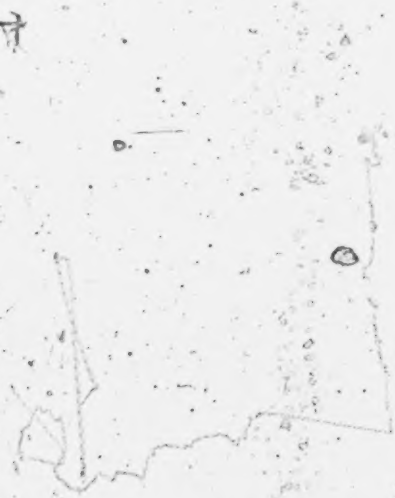
FEDERAL POWER COMMISSION

Respondent

PETITIONS FOR REVIEW FROM AN ORDER OF THE FEDERAL POWER COMMISSION

Original Transcript of Record Filed December 29, 1939

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BY MR. WESTON:

Q. Mr. Morris, do you know how much they have to pay for their operating expenses, within a reasonable degree of certainty or accuracy?

A. Their revenue runs around four million dollars a year. As I recall it, their operating ratio is—

MR. McALLISTER: Mr. Examiner, that is not qualification. He is now going back on direct examination. It depends not upon an over-all estimate or idea of what their total revenue would be. If this man is going to state what is the operating significance of these figures that have been read into the record it must be based upon an intimate knowledge of the operation.

MR. WESTON: If there is something wrong with his qualification or his statement, let him bring it out when his turn comes.

MR. McALLISTER: But I am going to object to the question now, Mr. Examiner, before it is answered, rather than afterwards, and rather than trying to break it down, and I ask that it be stricken physically from the record.

EXAMINER SPENCER: It will not have to be stricken physically from the record. It is a question of whether or not he can qualify as an expert on the question. He is not asking the direct question now; he is trying to qualify the witness.

BY MR. WESTON:

Q. Mr. Morris, you stated the operating revenues approximated four million dollars?

A. That is correct.

Q. Do you know within a reasonable degree of accuracy in round figures their total operating expenses?

A. Their operating ratio is about 70 per cent on Staten Island. So that would make their operating expenses run around $2,800,000.

MR. McALLISTER: I object. That is not qualification. It is not qualifying the witness.

EXAMINER SPENCER: Let him finish, Mr. McAllister. I will determine whether or not he is qualified.

BY MR. WESTON:

Q. In general, Mr. Morris, the picture of the size of Staten Island Edison Corporation on a dollar and cents basis, are the total of dollar transactions or the transactions in any given month—

EXAMINER SPENCER: Just a moment, please. I think you will have to lay your foundation to show how he is qualified. He has just made a statement that he generally knows the operating expenses and the revenues. That does not qualify him to answer that question unless he has knowledge based upon his examination of records or some familiarity with the operation of the company.

MR. McALLISTER: Mr. Examiner if a man goes in and runs over the books and gets a general idea of the operations, that does not qualify him. I believe you said "generally".

EXAMINER SPENCER: I said that would not qualify him. If you would pay more attention to what I say, perhaps we could make better progress. I say he has to have knowledge of it. If he is not familiar with the books he is not qualified. And that is what I will rule.

BY MR. WESTON:

Q. You stated you examined the log sheets and various other books and records of the Staten Island Edison Corporation. For the period in question have you examined the books and records as to the operations of the Staten Island Edison Corporation?

A. I have been over their monthly reports—I forget the last one I looked at—from which I just gave you the information. But I did not make any notes on them. I have been over their reports and I have seen their monthly reports. That gives you a good idea. Those monthly reports are taken from books and records by competent people, and they are prepared and submitted.

As I recall, the operating revenues were in excess of four million dollars. It may have been $4,085,000. It does not stick in my mind. But four million dollars is about the figure; and the operating ratio is about 70 per cent.

EXAMINER SPENCER: Let me ask you this question. What information you have as to operating revenues and expenses and the methods of operating was obtained in the course of your procuring the data from which this sheet was made?

THE WITNESS: Yes, sir. But this sheet was made up and checked against the log sheets.

EXAMINER SPENCER: I understand that.

THE WITNESS: The log sheets are kept outside the general office. If I might explain for just a moment, these log sheets are a narration of the meter readings, and all that sort of stuff, and letters and papers like that that they keep in the power station or in the system operator's office; and from there they advise the general accounting office as to what they must expect as a bill from the Public Service Electric and Gas Company and what they must bill the Public Service Electric and Gas Company in any given period, which is usually a month.

My information as to the revenues of Staten Island Edison Corporation and the approximate expenses were obtained from the report that the Chief

Accountant of the Staten Island Company is responsible for. He prepares those every month and he shows the revenues and expenses and all of the details. And I have been over those reports. That is the source of my information as to the revenue obtained. And I feel that they are thoroughly dependable.

EXAMINER SPENCER: Then your familiarity with the company in different aspects is confined to this examination of their records?

THE WITNESS: I have known the company for a long time; but this particular figure that I am giving you of four million dollars I looked at in connection with the preparation of these data that I am now putting in as an exhibit.

MR. WESTON: Mr. Examiner, I submit that qualifies him just as much as Mr. Grimsley was qualified to express a lot of conclusions that he read into the record that he secured from secondary information and reports to the Federal Power Commission, or otherwise. I could point out at least ten instances in which Mr. Grimsley was not qualified any more than Mr. Morris is qualified.

MR. McALLISTER: I object to the statement as to "secondary information." They are sworn reports filed with the Federal Power Commission.

MR. WESTON: Filed in connection with this proceeding, filed by the witness testifying in this proceeding?

MR. McALLISTER: No.

EXAMINER SPENCER: Have you any questions to ask on his qualifications, Mr. McAllister?

MR. McALLISTER: No, Mr. Examiner, I have not, because very definitely he is not qualified; in my opinion.

EXAMINER SPENCER: You may have the opportunity of showing that he is not qualified by your questioning.

Cross Examination

BY MR. McALLISTER:

Q. Mr. Morris, are you regularly employed and do you perform service for the Staten Island Edison Corporation in connection with the audit, payment and recording the operating revenues and expenses?

A. I want to get your question straight, if you please, sir. Do you mean am I in the employ of Staten Island Edison Corporation as an accountant or bookkeeper who works for nobody else but Staten Island?

Q. That is not the force of the question, because you might be employed by somebody else and you might be put in there and do all of the accounting work for them, so that you would have an intimate knowledge of what transpired from day to day and their business transactions?

A. I am not employed by Staten Island Edison Corporation to keep their books and know of their day to day transactions. I am not in the employ of Staten Island Edison Corporation.

Q. You would not be in position to determine from what transpired with respect to an item put in their books whether it was right or wrong?

A. I want to get the force of your question, Mr. McAllister. I want to be perfectly frank and understand just what you mean. I am not at all times and I am not telling you I am in there as an accountant or bookkeeper, or what-

ever you call him. The Staten Island Edison Corporation puts them on the books of Staten Island Edison Corporation. But I am not that fellow.

Q. Well, let's go one step further. Eliminate as to the relationship with the company, eliminate the relationship of the company by whom you are employed and what their relationship is with Staten Island, and forgetting for the time being some of those things; you are in the same position as any other third party who would go in there and examine those books and assume they are correct and from a cursory examination come out with certain details for which you were looking. Isn't that true?

A. Perhaps I can state my position so that all of us can understand it.

Q. Just answer the question, please.

MR. WESTON: I object to the "cursory" in his characterization.

THE WITNESS: I will not say that I made a cursory examination of these facts that are here. That was a very careful examination.

BY MR. McALLISTER:

Q. Now, with respect to the other matters of their general accounting.

A. As I said before for the record—and perhaps this will clear up the matter—in connection with this examination I looked at their operating reports, the report that the accountant or bookkeeper, or call him what you will, prepares each month. I did not go in and check to see if the total operating revenue was $4,085,000.21; I didn't go in to see whether it amounted to that. I took that report which was prepared long in advance, and it was used for the information of the offices of the company: I took that report and looked at it. That is my only source. It is not an estimate. I am trying to recall what it is, but it is around four million dollars.

I hope I have made myself clear. That is my information. I am not the accountant who records the books or supervises the ledger clerks putting them on the books. All I did was to go in and make an examination with respect to these transactions, and in the course of it I felt as an accountant I might look at something else. When I go in to make an examination I don't just confine myself to the very inside limits. I look at some things that may be related to it. I looked at those particular reports merely to get an idea as to what relation they had generally. I made no notes. Undoubtedly you have the figures in some of your sworn statements and can get the exact figure. I made a rough examination.

This is a detailed examination of those that I made. I looked at these other reports the same as any other accountant would who was endeavoring to make a comprehensive examination, but not too comprehensive an examination, as to what was doing. I did not feel I had to go ahead and make a general audit of the books of the Staten Island. I never did that. But those reports were prepared long before I got there. They were prepared by competent men whom I know, and I feel that they are correct. Now, that is all I can tell you about it.

I hope I have made myself clear, because I am endeavoring to answer the question to the best of my ability.

Q. Now, will you just answer these questions specifically, Mr. Morris?

A. Yes.

Q. In other words, you have not made an audit of the books of the Company?

A. No.

Q. Either receipts or disbursements?

A. No.

Q. Mr. Morris, you would not be in a position to verify a statement as to their accuracy, completeness or general correctness?

A. I would be in a position to do it if I examined the books.

Q. But I am saying, Mr. Morris, upon the basis of what you have done, would you?

A. No, sir.

EXAMINER SPENCER: Have you any further questions of the witness?

MR. McALLISTER: Will the Examiner indulge me for just a minute?

EXAMINER SPENCER: Yes, Mr. McAllister.

MR. McALLISTER: I would like to say something off the record, Mr. Examiner.

EXAMINER SPENCER: Off the record.

(Thereupon, an informal discussion occurred which the Reporter was directed not to record, after which the following occurred.)

EXAMINER SPENCER: All right, proceed.

BY MR. WESTON:

Q. Now, from your general knowledge of Staten Island Edison Corporation's revenues and disbursements and so on, would you say that any of the dollar volume of their transactions with Public Service Electric and Gas Company during any given period of time, monthly, yearly or otherwise, has been of any dollars and cents significance to Staten Island Edison Corporation on a proportionate basis?

A. I don't think you could find that in there.

BY EXAMINER SPENCER:

Q. What is the answer? I don't think you could find that in there?

A. Yes, in the expenses, if you attempted to relate them because, you take for the year 1937, on $4,000,000 revenue when you try to relate $280.37, which is the total

amount of money they paid for emergency and economy flow, you would get into such a small figure it would be probably 5/1000 of 1 per cent. It is so small you can't see it. It would not even pay a decent bookkeeper for a year, for a month rather.

BY MR. WESTON:

Q. Now, Mr. Morris, in connection with this case, have you prepared another statement entitled Staten Island Edison Corporation, summary of transactions with Public Service Electric and Gas Company, August 26, 1935, to March 14, 1938?

A. Yes.

Q. I hand you this document and ask you if that is the document you prepared, and whether the facts therein contained are correct as you ascertained them?

A. Yes, sir.

MR. WESTON: I offer this as Respondent's Exhibit No. 5.

EXAMINER SPENCER: All right, let this be received as Respondent's Exhibit No. 5.

MR. McALLISTER: May I look at it before it is received in evidence?

EXAMINER SPENCER: What?

MR. McALLISTER: May I see it before it is received in evidence?

EXAMINER SPENCER: Yes.

MR. McALLISTER: Before receiving it in evidence, Mr. Examiner, I made a request similar to that I have made with reference to the other exhibits, upon the basis it be brought down to the date upon which this hearing is commenced.

EXAMINER SPENCER: It is understood by counsel for respondent that upon the same condition as provided in other cases, the witness may supplement this by bringing it down to September 27th?

MR. WESTON: Yes.

EXAMINER SPENCER: Let the statement be received as Respondent's Exhibit No. 5.

(The document referred to was marked Respondent's Exhibit No. 5 and received in evidence.)

BY MR. WESTON:

Q. Now, Mr. Morris, will you summarize and explain this exhibit?

A. This is a summary of all transactions between Staten Island Edison Corporation and Public Service Electric and Gas Company, from the period August 26, 1935 to March 14, 1938.

The statement is subdivided as between kilowatt hours and dollars. The statement is broken down still further in four periods, the first period running from August 26th to December 31, 1935, the second period covers the calendar year of 1936, the third period covers the calendar year of 1937, and the fourth period covers the time from January 1, 1938 to March 14, 1938.

In respect of the kilowatt hours section of this statement it shows as the incidental flow first, delivered to Public Service Electric and Gas Company for each of the periods and the amounts received from the Public Service Electric and Gas Company for each of the periods.

The next line shows an excess of deliveries by Staten Island Edison Corporation of incidental flow over the receipts of incidental flow from Public Service Electric and Gas Company.

For the first period that excess of deliveries by Staten Island Edison Corporation to the Public Service Electric and Gas Company amounting to 111,100 kilowatt hours.

In the calendar year 1936 Staten Island Edison Corporation delivered 158,125 kilowatt hours more of incidental flow than they received from the Public Service Electric and Gas Company.

For the year 1937 the Staten Island Edison Corporation delivered 42,000 kilowatt hours more of incidental flow energy than they received from the Public Service Electric and Gas Company, and for the period January 1, 1938 to March 14, 1938, the Staten Island Edison Corporation delivered 36,000 kilowatt hours more of incidental energy to the Public Service Electric and Gas Company than it received from it.

Then, it shows the purchases of economy flow energy from the Public Service Electric and Gas Company, which during the period August 26, 1935 to December 31, 1935, amounted to 51,800 kilowatt hours.

For the calendar year 1936, 329,600 kilowatt hours.

For the calendar year 1937, 13,600 kilowatt hours, and there were no economy flow purchases by Staten Island Edison Company from Public Service Electric and Gas Company during the period January 1, 1938 to March 14, 1938.

In respect of purchases of emergency energy, there were no kilowatt hours purchased during the period August 26, 1935 to December 31, 1935.

For the calendar year 1936 Staten Island Edison Corporation purchased 3,725 kilowatt hours of emergency energy from the Public Service Electric and Gas Company.

For the calendar year 1937 the Staten Island Edison Corporation purchased 3400 kilowatt hours of emergency energy from Public Service Electric and Gas Company, and for the period January 1 to March 14, 1938, the Staten Island Edison Corporation purchased 1,000 kilowatt hours of emergency energy from Public Service Electric and Gas Company.

The next line shows the excess of net deliveries of economy flow energy by Staten Island Edison Corporation to Public Service Electric and Gas Company.

Q. Excess of—you say economy flow? Excuse me, you didn't mean that?

A. No. The next line shows cost of net kilowatt hours of incidental energy delivered by Staten Island Edison Corporation to Public Service Electric and Gas Company over the number of kilowatt hours purchased by Staten Island Edison Corporation from Public Service Electric and Gas Company as economy and emergency energy.

Now as to the dollar section of the statement, which is subdivided into the four periods I mentioned before, it shows for the year 1935, wait a minute, excuse me. It shows for the period August 26, 1935, to December 31, 1935, that the economy flow energy and emergency energy cost the Staten Island Edison Corporation $496.55, and that the excess of net deliveries of incidental flow amounted to $299.97, so that the net result of all transactions as between Staten Island Edison Corporation and Public Service Electric and Gas Company resulted in a net payment by the Edison Corporation of $196.58.

For the calendar year 1936, the total cost to the Staten Island Edison Corporation of economy flow and emergency energy amounted to $2,491.41, and that the amount coming to the Staten Island Edison Corporation, the net amount coming to the Staten Island Edison Corporation as result of excesses of deliveries of incidental flow amounted to $426.94. The net result of all transactions resulted in the Edison Corporation paying a net amount of $2,064.47.

For the calendar year 1937, the Edison Corporation purchased economy flow and emergency energy for a total of $280.37 and they had coming for the excess of net deliveries of incidental flow $115.56, so that the net dollar

cost as between the two companies for all transactions amounted to $164.81.

For the period January 1, 1938 to March 14, 1938, the total cost to the Edison Company for emergency flow energy, and there was no economy flow, was $48, and the amount coming to the Edison Corporation for net deliveries of incidental flow energy to Public Service Electric and Gas Company amounted to $97.20, so that the net dollar balance was in favor of the Edison Corporation to the extent of $49.20.

Q. Now, Mr. Morris, one or two general questions. In keeping the books and records of a public utility company, is there any distinction generally drawn between different types of power, that is, are they billed differently?

A. Oh, yes, very much so.

Q. As a practical matter, therefore, a commercial matter, there is some difference between these various types of power?

A. That is right.

Q. If so, will you state the difference?

A. Beg pardon?

Q. Is there any difference in cost?

A. Oh, materially so. For firm power you pay top prices. For economy—

MR. McALLISTER: (Interposing) Now Mr. Examiner, if this witness is testifying to the matters that are related and reflected on books as they came to him, that is one thing. If he is testifying as to the reason for the difference as an engineer he must be qualified to express a reason for it.

MR. WESTON: I am very careful to point out that he is not testifying as an engineer.

EXAMINER SPENCER: He is testifying as an accountant and expert in financial administration.

MR. WESTON: Public utility accounting.

EXAMINER SPENCER: Do you admit he is qualified?

MR. McALLISTER: He is an accountant, Mr. Examiner, although he intimated he was interested in the financial transactions.

MR. WESTON: I will qualify him as an operating man if you wish. It so happens he can just as well be qualified that way.

EXAMINER SPENCER: He has testified that he has had experience in public utility accounting and financing and that he is presently employed by some public utility.

BY EXAMINER SPENCER:

Q. Is that correct, Mr. Morris?

A. I have had considerable experience in public utility accounting and financing.

Q. That is right, you testified that?

A. Yes, sir.

EXAMINER SPENCER: I think that question would be competent.

MR. McALLISTER: If it is based upon records and why he knows there is a difference in the prices, it is perfectly all right. If he states the reasons are that someone produced bills for one that is higher than another, why that is a matter that is beyond the knowledge of this witness.

EXAMINER SPENCER: In any particular transaction that would be true. I understood the question to be, I understood it was a general question as to the practice in the profession.

BY MR. WESTON:

Q. Is there a difference that you know?

A. From my knowledge there is a difference and the difference in the price you pay for it, that is your question?

Q. That is right.

A. Certainly there is a difference.

Q. In connection with this case, have you examined to any extent the books of Jersey Central Power & Light Company?

A. Yes, sir.

MR. McALLISTER: What was that question, please? Have you examined the books of the Jersey Central Power & Light Company?

MR. WESTON: Yes, and his answer is yes.

BY MR. WESTON:

Q. Are the economy flow transactions between Jersey Central Power & Light Company and Public Service Electric and Gas Company reflected in the operating revenues of the Jersey Central Power & Light Company?

A. No, they are not. They are treated as a credit to production expenses.

MR. WESTON: That is all.

EXAMINER SPENCER: You may proceed with cross-examination, Mr. McAllister.

Off the record.

(Discussion off the record.)

EXAMINER SPENCER: We will recess for ten minutes.

MR. McALLISTER: Thank you.

(Short recess.)

EXAMINER SPENCER: The hearing will be resumed. You may proceed, Mr. McAllister.

Cross Examination

BY MR. McALLISTER:

Q. What was your instruction, Mr. Morris, which you received from Mr. Paxson? I think you stated you were working for him in the preparation of these exhibits.

A. Do you mean as to the scope of the investigation?

Q. What were you asked to do, and which you, fol-

A. I was instructed to get the detailed analysis, or lowing out those instructions, have attempted to do in relating on this paper the information which you show?

A. I was instructed to get the detailed analysis, or a summary of the transactions between Staten Island Edison Corporation and Public Service Electric and Gas Company, and that is what I have done.

Q. For the period shown on the exhibits?

A. That is correct. That is right.

Q. And did you receive any instructions as to the records you were to consult in assembling that information?

A. Mr. Paxson is a lawyer and I am an accountant. Maybe he would not even know, but I knew what to look for when he told me.

Q. Were you asked to get that from the books and records of the Staten Island Edison Corporation?

A. Yes, that is where it came from.

Q. Under those instructions were you requested to obtain the information from other records showing the purchases and sales of energy between the two companies, is that correct?

A. All the transactions between the two companies.

Q. Well now, have you shown on here the transactions between the two companies which would be involved in addition to the cost of maintenance on the cable from Mechanic Street to Atlantic Substation?

A. I show here—

Q. (Interposing) Just answer the question.

A. No, sir.

Q. That is a transaction between two companies?

A. Well, maybe I don't understand. Maybe I didn't state my instructions properly, Mr. McAllister.

Q. I just wanted to get that in detail what your instructions were.

A. The flow of energy between the two companies, the energy transactions between the two companies which involved kilowatt hours and dollars and cents.

Q. The flow of energy and amount of money that were respectively paid by one to the other in settlement for the energy they received?

A. That is right. I thought that was clear. I thought I was clear on it, but that is exactly what it is.

Q. That is what you were asked to get?

A. This is the flow of energy between the two companies and the amounts of money applicable thereto.

Q. You related the dollars and cents which you show on Exhibit 4 to the gross annual revenue of Staten Island Edison Corporation and also to the operating expenses?

A. As I recall, I just related them to the operating revenue.

Q. Well, you stated what the operating expenses were as best you could, to the best of your knowledge, did you not?

A. Yes, I did, but I did not relate these figures to that. I was relating them to the $4,000,000 worth of revenue.

Q. How would the amounts they paid out in various years relate to the revenue? Would that not be reflected in operating expenses rather than revenue?

A. The amounts they paid out?

Q. Yes, paid out.

A. Staten Island paid to Public Service?

Q. That is right.

A. That is in operating expenses?

Q. So that the two, operating expenses and revenue had some relation in the manner in which you stated it, to the figures which you show on Exhibits 4 and 5?

A. Of course, the amounts paid out by Staten Island for energy bought from Public Service would have a direct relationship to their expenses. Your expenses are around $2,800,000, and if you try to relate $280.37, as I did before, it makes little difference whether you relate it to the $4,000,000 or to the $2,800,000. It is inconsequential. That is what I was attempting to relate.

Q. If you were really trying to find out what this energy costs Staten Island Edison Corporation would you not also have to take into consideration the operating expenses which they incurred in the maintenance of interconnection?

A. The trouble with utility cost finding, Mr. McAllister, is it not a very fine art? What I took here was the amount of dollars billed back and forth. We didn't take into consideration—if I were going to make an exact cost study of the thing, I would take that into consideration. I don't know what the cost was now, because I didn't look at it, but that would be a factor in considering what the cost of energy was because it is part of the cost.

Q. You would have to have all this cost before you would really be in a position to relate it to operating expenses or revenues, depending upon whether it was money received or money paid out.

A. Well, let's see. I think that would be the only other cost that would enter in the cost of maintaining the line.

Q. How about return on the investment in the line?

A. Yes, that might go in. I think they would probably have an investment of, maybe,—well, I don't want to make a guess.

Q. No, I don't think it would be wise.

A. Because I don't know, and there is no sense in making a guess, but you would probably figure return on your money in there if you were going to make an exact cost study. If you were going to do that you would take into consideration all the factors involved.

Q. And depreciation and retirement would be another factor?

A. Yes, that would be a factor.

Q. You would not attempt to say what other elements in addition to those which we have just been discussing should be taken into consideration in determining the cost of this interconnection and the value of the interconnection, which ever way you want to relate it, would you?

A. Well, if you are making a cost study, if you want to get the cost of the power to the Edison Corporation, first you take into consideration the billing, that is the big item.

Q. Is that the big item?

A. That is the first one you would go to anyway.

MR. PAXSON: If the Commission please, I have been very patient, I think, but I would like to ask for an offer of proof and the purpose. This witness was put on to show certain transactions in dollars and cents. Now he has testified that. He hasn't testified at all as to what the cost of the energy was. He has not been offered to make any cost analysis or statements of that kind. I don't know the purpose of this and I think we are entitled to know. It is not proper cross examination at all.

EXAMINER SPENCER: Mr. McAllister, how

do you connect your line of questioning with the direct examination?

MR. PAXSON: I may be wasting time, but I think I am entitled to know.

MR. McALLISTER: This witness related these costs to operating expenses and revenues. He said they were infinitesimal, so to speak. Now I am showing on his statement he has not taken into consideration the real elements that must be taken into consideration before you say what is the cost of the energy. He has taken only one. I am going to—

MR. WESTON: (Interposing) We have got a particular situation here in that we can not spend too much time on insignificant things. It has already been testified this cable is only the length of Kill Van Kull, a few hundred feet. The cost of a few hundred feet of cable certainly is not of enough significance to waste an hour in cross-examination.

MR. McALLISTER: I think there are some other insignificant items in here.

MR. PAXSON: Why don't you cross-examine?

MR. McALLISTER: I am cross-examining on the direct testimony.

EXAMINER SPENCER: Proceed.

MR. PAXSON: If he wants to waste all of our time, let him go ahead and make him his own witness.

MR. McALLISTER: I want it distinctly understood I am not making him my own witness.

EXAMINER SPENCER: I don't think you have the power to do that. Just go ahead.

BY MR. McALLISTER:

Q. During the time this interconnection is maintained Staten Island Edison Corporation is relieved of the necessity of maintaining spinning reserve in its Livingston plant, isn't that true?

MR. PAXSON: I object to that. He is broaching engineering. We didn't offer him as an engineer. It has all been gone over and Mr. Lytle who knows the facts is not here now.

MR. McALLISTER: I am going to show through this witness that is a matter of dollars and cents. It was testified to by Mr. Lytle that it is a matter that enters into the determination of the figures before they can be related to operating expenses and operating revenue. Those are elements Mr. Lytle says go into the determination of these prices.

MR. WESTON: If Mr. Lytle said it why bring it out again? It is repetition.

MR. McALLISTER: It is not repetition.

EXAMINER SPENCER: Why don't you ask him the items he did take into consideration?

MR. McALLISTER: I did point it out. I am asking him about the ones he did not.

MR. WESTON: Point it out in the brief.

MR. McALLISTER: I will point it out now.

BY MR. McALLISTER:

Q. You heard the testimony of Mr. Lytle?

A. You have a question on there already.

Q. I will strike that question and put another.

A. All right.

Q. You heard Mr. Lytle testify at the time this interconnection was closed and operating there was no obliga-

tion or necessity on the part of Staten Island Edison Corporation to keep spinning reserve at their Livingston plant?

MR. PAXSON: We object to that as improper, irrelevant and not being proper cross-examination and not proper testimony.

MR. McALLISTER: I am asking the witness if he heard that testimony.

MR. PAXSON: I press my objection.

EXAMINER SPENCER: Overrule the objection.

MR. PAXSON: Exception.

EXAMINER SPENCER: Exception noted.

BY EXAMINER SPENCER:

Q. He asked you if you heard the witness Lytle testify that statement, did you?

A. I don't recall. I have been here on and off and in and out, but I don't remember about the spinning reserve. I am not an engineer, but I would have understood the question had I heard it. It may be in the record but I didn't read the record.

BY MR. McALLISTER:

Q. Did you take into consideration in any of your figures what the cost to the Staten Island Edison Corporation, or the savings to the Staten Island Edison Corporation, whichever it might be, were of being relieved of the obligation to maintain such spinning reserve?

A. My statement here,—

Q. (Interposing) Just answer the question.

A. Wait a minute.

Q. Then you can explain it?

A. Will you read the question, please?

(The reporter thereupon read the pending question as recorded.)

THE WITNESS: No, sir.

MR. WESTON: Mr. Examiner—

MR. McALLISTER: Just a minute, let the witness complete his answer.

MR. PAXSON: He has a right to make an objection.

MR. WESTON: Isn't it correct, the exhibit speaks for itself?

MR. McALLISTER: No.

MR. WESTON: He has a detailed exhibit and anything in regard to—

MR. McALLISTER: (Interposing) Let the witness answer.

MR. WESTON: Are you the Examiner?

EXAMINER SPENCER: Let me rule on that. What is the question, read the question?

(The reporter thereupon read the pending question as recorded.)

EXAMINER SPENCER: Now you may explain.

THE WITNESS: To continue with the answer, all this statement shows, and all it purports to show is the fact that certain payments were made by Staten Island Edison Corporation and Public Service Electric and Gas Company, and vice versa, and that is all it shows. It is not a detailed cost study. They can probably save some time. It refers to payments made by Staten Island Edison Corporation to Public Service Electric and Gas Company and Public Service Electric and Gas Company to Staten Island Edison Corporation. That is all it shows.

BY MR. McALLISTER:

Q. If you were undertaking in the statement to show whether there was a saving to Staten Island Edison Corporation or an expense to Staten Island Edison Corporation by reason of the maintenance of this interconnection in the manner in which they operated it, you would necessarily be required to take into consideration changes in operation which would arise from the maintenance of the connection, would you not?

MR. PAXSON: Objected to as not proper cross-examination. He hasn't testified to any savings. It is just a dollar and cents cost of the energy and it is a hypothetical question. For all those reasons I object to it as incompetent, immaterial and irrelevant.

MR. McALLISTER: He is an accountant, Mr. Examiner, and part of the duties of an accountant of the character which he says he is—

EXAMINER SPENCER: Just a minute. Off the record.

(Discussion off the record.)

EXAMINER SPENCER: On the record. Objection overruled, and exception noted. Proceed, Mr. McAllister.

MR. McALLISTER: Will you read the question?

(The reporter thereupon read the pending question as recorded.)

THE WITNESS: I just want to get it clear. What do you mean changes in operation?

BY MR. McALLISTER:

Q. Whether you maintain a generator spinning on the line or off the line, elimination of an entire power plant, let us say, if that should result—

A. (Interposing) That is based on these figures. I mean on the kilowatt hour flow. I am just trying to understand your question so I can give you a proper answer. I am not attempting to hedge. It is a long question.

Q. Let's start all over again and I will break it up.

A. All right.

Q. In any cost determination it is necessary to take into consideration all the elements that affect your cost, isn't that true?

A. That is elementary, yes. That is elemental, you have to do that.

Q. In determining cost to determine what is the direct out-of-pocket payments, the amounts billed for the energy sold, that would be the first element to be taken into consideration?

A. This would involve expense. It is running the other way.

Q. It runs both ways. You show a red figure on Exhibit 5.

A. It would in connection with the purchase of economy flow.

Q. I mean—

A. (Interposing) I am trying to get you straight because I want to give you the right answer.

Q. If it is expressed you put it on one side and revenue on the other, isn't that correct?

A. Usually. It depends which way it is coming.

Q. Which way it is coming?

A. Yes, sir.

Q. The cost to one company or the other company of maintaining the interconnection is another element of cost?

A. That is right.

Q. Is that correct?

A. Yes, I think that would be an element of cost.

Q. Investments, I mean return on the investment would be another element.

A. On that question I have a little bit of doubt because the utility industry is a little bit different from other industries because you recoup your return on investments from customers, and that might not enter in here since you are allowed a reasonable return on your investment and you recoup that on your rates. That may or may not go in. The circumstances of the particular cost study may or may not include cost on your money. In some cases you may have to include them as an includable cost item. In some cases, like this one, the Staten Island Edison Corporation is allowed a rate of return on investments and they recoup that from the rate payers. In the way you are attempting to do it, you are attempting to figure the return and cost item and you get double money.

Q. All right, you get double money here on this statement because they recouped from their customers.

A. No.

Q. Why don't you? The customers pay all the operating expenses. Therefore, I suppose it follows the customer pays these bills.

A. Of course.

Q. Now are—

A. (Interposing) Now please, you must remember in any utility rate case there are two things you must take into consideration. First is the amount of invested capital and you are allowed a rate of reasonable return on that. Now, what makes up that thing called rate of return? These two things are dovetailed together because your operating expense taken off revenues leaves you a net. That is your rate of return after all expenses have been taken out of your revenue. That is the net against which you apply 7 or 7½ per cent on your fixed capital. If that doesn't happen to equal the 7 or 7½ per cent which you are allowed you can go up on your revenues. If it is more

you cut the revenues. It dovetails together and you have to take them all into consideration at any given time. There may be certain items not allowed in your expense. They are kicked out in order to figure how much you are getting in relation to the amount the Commission will allow you. So, you have to take all of those factors into consideration and that is what I am trying to point out.

Q. Did I ask you, Mr. Morris, anything about a rate case or anything else?

A. I was merely trying to be helpful in this thing in answer to a question of yours as to whether or not I included personally a figure on return on investment that Staten Island Edison Company may have in the interconnection between the Atlantic Substation and bus on Mechanic Street. I was given you what I might or might not do. I did not say definitely I would or would not. I don't know.

Q. Let us get at it another way. If I asked you to determine the cost of transmitting energy from Mechanic Street Substation to Atlantic Substation would the return on the investment in that line be a proper element of cost?

MR. PAXSON: Objected to as incompetent, immaterial and irrelevant. These exhibits were not submitted as a power cost study and a power cost study can only be made by engineers and operators and not by an accountant. It is also not proper cross-examination.

MR. WESTON: This witness was asked about dollars and cents transactions between these two companies. He was also asked in general about what the total operating revenues were of this company. I don't think that he was asked to make any study on direct examination of the relationship between the two.

EXAMINER SPENCER: He was asked whether

or not these figures were significant in comparison with the revenues.

MR. McALLISTER: And expenses.

MR. WESTON: That is right.

EXAMINER SPENCER: Now as I understand the purpose of this cross-examination is to show this witness, the responses of the witness, that the figures are insignificant is not based upon facts which were derived by considering the items of cost involved. I will overrule the objection and you may proceed, Mr. McAllister.

MR. PAXSON: Exception.

MR. McALLISTER: Mr. Examiner, I would like to have a direct answer without having any longdrawn out explanation.

EXAMINER SPENCER: The witness may explain his answer. He is permitted to do that.

MR. McALLISTER: How far afield will he go?

THE WITNESS: I won't go far.

MR. PAXSON: You are going pretty far afield yourself, Mr. McAllister.

MR. McALLISTER: I am not going far afield.

EXAMINER SPENCER: Proceed.

BY MR. McALLISTER:

Q. Will you answer the question please?

A. Will you read it, please?

(The reporter thereupon read the pending question as recorded.)

THE WITNESS: I don't see why my answer would differ in relation to that.

BY MR. McALLISTER:

Q. I want an answer yes or no. That is a simple matter and well understood.

A. If you are making a study—

Q. (Interposing) The determination of cost of transmitting energy between two points. Now do you take into consideration the return on the investment in the line?

A. If you are trying to determine whether or not it would be feasible to make the interconnection—

Q. (Interposing) I am not asking that question, Mr. Examiner.

EXAMINER SPENCER: Mr. Morris, answer the question directly if you can. Then you can explain your answer.

THE WITNESS: The answer is you may or may not. It all depends.

BY MR. McALLISTER:

Q. Now—

A. (Interposing) Now I am trying to answer your question.

EXAMINER SPENCER: Let him proceed.

MR. McALLISTER: It is going to be a long-drawn out thing and I am going to put that question in another way. I related it first between Mechanic Street and Atlantic Substation. We are trying to determine in this question what is the cost of transmitting energy between those two points and that is the only thing involved, and I was saying in the determination of that cost of transmission, should in accepted accounting principles the return on the investment in the line be included as an element in the cost.

EXAMINER SPENCER: Can you answer the question, Mr. Morris?

THE WITNESS: I think so. I would say no. I will explain the reason why I say no, if you will permit me.

BY MR. McALLISTER:

Q. All right.

A. I won't go into a long story because I explained it before, because the return on that investment is recouped from your customers. That is the only reason I would exclude it.

Q. All right, I will ask you this question, if a cost determination was being made for the purpose of determining what amount you would charge a third person for transmitting energy over that line, no other use being made of it, would you include a return on the investment in the line?

MR. PAXSON: Mr. Examiner, I want to expedite this as much as possible, but I am compelled to object.

MR. McALLISTER: I am not going to expedite anything.

MR. PAXSON: Have I a right to be heard?

EXAMINER SPENCER: Certainly I will hear you.

MR. PAXSON: I want to expedite it as much as possible if it will be understood the same objection which I have been making applies to this whole line of questioning, I will refrain from interrupting.

EXAMINER SPENCER: It may be so understood. Proceed.

THE WITNESS: The answer to that question is yes, because you would want to get the return on your investment from your customer. That ties in with the answer before.

BY MR. McALLISTER:

Q. If you are determining here on the cost of transmitting this energy between Mechanic Street and Atlantic Substation, why do you apply a different principle there?

A. Well, in a suppositionary case you gave me a moment ago, you said it was only going to serve one particular customer. You would get the return on your investment from that particular customer. The reason I would exclude it there, if you got it from X in that case you are getting it from A, B and C, the other customers, so the return on the investment, it is a part of the rate base.

Q. I don't give a hang about that.

A. That is what I am trying to tell you.

EXAMINER SPENCER: All right, proceed.

BY MR. McALLISTER:

Q. The figures you show on Exhibit 4 and 5 enter into the determination of the expense of rendering service to your customers?

A. Yes, sir.

Q. It is recouped from them as part of your operating expenses?

A. That is right.

Q. If you are trying to determine the cost to Staten Island Edison Corporation or the net revenue which they receive by reason of the energy transmission between Mechanic Street Substation and Atlantic Substation, the investment on that particular line in that particular investigation is just as vital. We are only dealing with the energy which passes between those two points on this interchange and we are attempting to determine whether it cost Staten Island Edison Company something or whether it is a source of revenue to them, just related to the interconnection and having no relation to other property whatever.

A. If you want to forget the rate of return on the rate base, all right, include it there, but if you want to get it out of your rate of return it is a different thing.

Q. If you are determining the actual cost of transmitting energy between those two points you must take into consideration the return on the investment.

A. Not necessarily. You don't have to take it into consideration if you are going to get it some place else.

Q. I am not taking it somewhere else.

A. I am telling you what the practice is.

Q. I am asking you if you are trying to determine the cost of transmission between those two points that is one of the elments that must be taken into consideration.

A. Not necessarily.

EXAMINER SPENCER: He has answered the question, Mr. McAllister.

BY MR. McALLISTER:

Q. How about maintenance then?

A. You might include your maintenance as cost, yes.

Q. Might or might not?

A. Might, probably would.

Q. Would you?

A. Would I?

Q. Yes.

A. Yes.

Q. How about retirement or depreciation?

A. Yes, I would include that.

Q. You would include that?

A. Yes, sir.

Q. If as a result of energy flowing over that line you were able to eliminate the operation of a generator would you take that into consideration?

MR. PAXSON: That is objected to. He is not qualified as an engineer. He is asking now about engineering matters.

MR. WESTON: Take into consideration in connection with what?

MR. McALLISTER: In the determination of the cost of energy to that company.

EXAMINER SPENCER: Proceed.

MR. PAXSON: Have you ruled on my objection?

EXAMINER SPENCER: Yes, overruled.

MR. PAXSON: Exception.

THE WITNESS: If you could shut down a generator as a result of it you might consider that as part of your cost and probably would. That would result in a saving, the shutting down of a generator.

BY MR. McALLISTER:

Q. Would you include that?

A. If there were such a thing, if they did shut it down you would take the cost of running it off or add it on as part of the cost because if you are getting the energy from one place you don't have to get it from another, and whatever saving, great or small, you could make that as part of your cost.

Q. A credit to cost if it was a saving?

A. If you were trying to figure out what your costs were, that would be an offset to cost. A credit, and therefore a reduction in the total cost.

Q. Other variations in operation of a related character would be treated likewise?

A. What other variations have you in mind, Mr. McAllister?

Q. Well, supposing you could eliminate a transmission line.

A. You need a transmission line to get it from Mechanic Street or over there.

Q. It is assuming this generating plant is out of service?

A. No, I would not put that in as an item of cost, because your transmission line is there and built and I don't see much sense in figuring that as part of your savings in cost. I don't know how you would save the transmission line in the first place because, as I understand the testimony here, there are no transmission lines, but what I have in mind in this, you have your distribution high voltage in there and you would save no money there. You would have to energize your line between Atlantic Station and wherever you were going to use it, so how are you going to save any money?

Q. I am assuming we are going to tear down a line and eliminate it entirely because of the ability to obtain energy at the other end of the system because there would be no need of it, assuming that condition exists, you could eliminate a transmission line, or part of it, or a substation, whatever saving that would be accomplished thereby would also be an element to be taken into consideration.

A. Frankly that is rather a wild assumption, if you will pardon me for saying so. If you tear down a line it would be out of your fixed capital. The answer is no, I would not consider that at all.

EXAMINER SPENCER: All right, proceed.

BY MR. McALLISTER:

Q. You stated, did you not, that sales of Jersey Central to Public Service were not treated as revenue, but were treated as a credit to the cost of generation?

A. Sales by whom, sir?

Q. Jersey Central Power & Light Company to Public Service Electric and Gas Company.

A. Yes, I believe I made that statement they were credited to production expense.

Q. Is that a proper treatment of that item of revenue?

MR. AUTENRIETH: I object to that as far as Jersey Central is concerned. How can he say whether—

EXAMINER SPENCER: (Interposing) Objection sustained.

MR. McALLISTER: Will you read the question? I didn't ask him that question. I asked him whether that charge was proper.

MR. AUTENRIETH: Do I understand your Honor overruled the objection?

EXAMINER SPENCER: I sustained the objection.

MR. McALLISTER: Will you read the question?

(The reporter thereupon read the pending question as recorded.)

MR. McALLISTER: My question was broken into. The reporter didn't get it all.

EXAMINER SPENCER: You can ask him if that is in accordance with classification of accounts.

MR. McALLISTER: That is what I was leading up to.

MR. AUTENRIETH: I don't care about that. I object to the characterization whether Jersey Central accountings were proper.

EXAMINER SPENCER: All right.

BY MR. McALLISTER:

Q. I will put another question. Is that expense, charged as it is on the books of Jersey Central, is that expense as set up on the books of the Jersey Central in

conformity with the rules laid down in the uniform system of accounting prescribed by the Federal Power Commission?

MR. AUTENRIETH: I object to that question because it is not proper because it does not now appear that the Jersey Central is bound by the system of accounting of the Federal Power Commission. It is under the jurisdiction of the New Jersey Utility Commission.

MR. McALLISTER: I will amend the question by saying the rules prescribed by the Board of Public Utility Commissioners of New Jersey, I think that is the way it is characterized.

MR. AUTENRIETH: I press my objection.

EXAMINER SPENCER: On what grounds?

MR. AUTENRIETH: Simply I don't believe this witness can answer. He is not our employee. He said he made only one examination.

EXAMINER SPENCER: I can see where the question might go to another point. I will overrule the objection.

MR. AUTENRIETH: Exception.

MR. McALLISTER: The proper time, Mr. Examiner, if I may interrupt, was to make the objection on direct and there was no question but that was put to him on direct examination.

THE WITNESS: I am not particularly familiar with the present classification of accounts now in effect in New Jersey to answer your question, sir.

BY MR. McALLISTER:

Q. Then your answer on direct is to be understood to have been made in the light of that qualification also?

A. No, sir; my answer on direct was made as a result of looking at the records of Jersey Central Power & Light Company. Whether they are keeping their books in accordance with the classification of accounts presently in existence I have no knowledge. I assume they are.

Q. What significance was attached to your statement, why did you make the examination to determine that fact?

A. That came along incidentally as part of the examination because when you look at a voucher it always shows that it was charged and credited, and I happened to be somewhat observant and noticed that.

Q. Why does that matter stick in your mind so much that you should come down and relate it on the record?

A. I was asked to do it in the first instance and I happen to remember it.

Q. Counsel wasn't there when you examined the records and vouchers?

A. Of course not.

Q. You related that fact to him?

A. I didn't. He asked me the question.

Q. Mr. Weston?

A. I don't recall. He probably did.

Q. How would he obtain the information if you had not related it?

A. God only knows. There is no significance attached to it. I looked at a flock of vouchers and you see credit after credit.

Q. You had no purpose in mind?

A. Except to answer the question I answered in response to the assignment.

MR. ANTENRIETH: I will concede as far as Jersey Central is concerned it has no significance.

EXAMINER SPENCER: All right, proceed.

MR. McALLISTER: No more questions, Mr. Examiner.

EXAMINER SPENCER: Any questions for the respondent?

Redirect Examination

BY MR. PAXSON:

Q. Mr. Morris, are you a valuation engineer?

A. No, sir.

BY MR. WESTON:

Q. Mr. Morris, do you know about the length of the submarine cable underneath the Kill Van Kull connecting those companies?

A. I know nothing about that interconnection except what I have been told.

Q. Assuming that interconnection was about 400 feet long and the depreciation thereon was a thousand dollars a year and all the other factors counted up to some few thousands of dollars, would you still say the dollars and cents transaction between Staten Island Edison Corporation were insignificant compared to their total expenses and revenues?

MR. McALLISTER: Mr. Examiner, a question of that kind is founded on such obscure estimates and uncertainty that I do not think it merits any consideration in the record.

MR. WESTON: If he answers the question it will be taken for what it is worth.

MR. McALLISTER: I don't think the question ought to be answered.

EXAMINER SPENCER: Go ahead and answer.

THE WITNESS: Based on your assumption in relation to the total business of Staten Island Edison Corporation, it is still insignificant.

Recross Examination

BY MR. McALLISTER:

Q. It is what it is regardless of what language is used to describe it, isn't that true?

A. I don't know what you mean it is what it is. If you get your pronouns right—

Q. (Interposing) The statements you make weren't made on anything very definite.

A. Was based on—

Q. (Interposing) Assuming it was 400 feet long and they spent a few thousand dollars—

A. (Interposing) Like any other hypothetical question it was answered,—

EXAMINER SPENCER: Any more questions?

MR. McALLISTER: He didn't finish his answer. He was talking to me, Mr. Examiner. He didn't finish.

THE WITNESS: There was a period on the end of it.

EXAMINER SPENCER: Any further questions?

MR. McALLISTER: Yes, there is another question. (After a pause.) No further questions.

MR. WESTON: No further questions.

EXAMINER SPENCER: The witness is excused.

THE WITNESS: Thank you, sir.

(Witness excused).

EXAMINER SPENCER: We will take a recess until 1:45 p. m.

(Whereupon at 12:35 o'clock p. m. a recess was taken until 1:45 o'clock p. m. this day.)

AFTER RECESS

(Met, pursuant to the taking of the recess, at 1:45 o'clock p. m.)

EXAMINER SPENCER: Gentlemen, the hearing will now be resumed.

MR. PAXSON: I will ask Mr. Sibley to take the stand.

EDGAR DOW SIBLEY

was called as a witness for and on behalf of Respondent and, having been first duly sworn, testified as follows:

Direct Examination

BY MR. PAXSON:

Q. Will you please state your name?

A. Edgar Dow Sibley.

Q. Where do you reside, Mr. Sibley?

A. Reading, Pennsylvania.

Q. Are you an electrical engineer?

A. Yes, sir.

Q By whom are you employed?

A. I am employed by the Utility Management Corporation.

Q. In what capacity?

A. As Chief Electrical Engineer.

Q. You are Chief Electrical Engineer of Utility Management Corporation?

A. Yes, sir.

Q. Mr. Sibley, will you please tell us something about your experience, let us say from the time you graduated from college, if you did?

A. From June 1902 until January 1903 I was a meter tester for the New York Edison Company.

Q. Just a moment, Mr. Sibley. Are you a graduate engineer?

A. Yes, sir.

Q. Have you any degrees?

A. Yes, sir.

Q. What?

A. I have the degree of Electrical Engineer from the Polytechnic Institute of Brooklyn, in 1911.

Q. Do you belong to any electrical engineering societies?

A. I am a member of the National Society of Professional Engineers; I am a Fellow of the American Institute of Electrical Engineers; I am a registered professional engineer in the states of Connecticut, New York, New Jersey, North Carolina, South Carolina and Florida, and in the Commonwealths of Pennsylvania and Virginia.

Q. You are a registered engineer in all those states?

A. That is true.

Q. Now, Mr. Sibley, tell us something about your experience as you started to do when I interrupted you a little while ago?

A. From January, 1903 until August, 1904 I was a substation operator in the substations of the Brooklyn, Rapid Transit Company, in Brooklyn, New York.

From August, 1904 to January, 1909 I was connected with the testing bureau of the Brooklyn Rapid Transit Company having charge of the electrical test work.

From 1909 to 1912 I was assistant superintendent of power of the Brooklyn Rapid Transit Company.

From June, 1912 to August, 1912 I was power station design engineer for W. G. Cole, Singer Building, New York City.

From August, 1912 to January, 1913 I was an appraisal engineer for the New England Engineering Company at Greenwich, Connecticut.

From January, 1913 to July, 1913 I was a relay engineer for the New England Power Company in Worchester, Massachusetts.

From July, 1913 to March, 1915 I was chief load dispatcher for the New England Power Company in Millbury, Massachusetts.

From March, 1915 to March, 1916 I was engineer for the West Virginia Traction and Electric Company in Wheeling, West Virginia.

From March, 1916 to January, 1920 I was superintendent of power and substations for the Metropolitan Edison Company in Reading, Pennsylvania.

From January, 1920 to October, 1922 I was superintendent of operation for all the General Gas Properties.

Q. Was the General Gas a large system?

A. I guess the full name is General Gas and Electric.

Q. I asked if that was a large system?

A. Yes, sir. We had several properties, large properties.

Q. In different states?

A. Yes.

Q. Go ahead, please.

A. The Metropolitan Edison Company was one. The Binghamton Light, Heat and Power Company was another. These properties connected directly to the Metropolitan Edison Company over in Easton, Pennsylvania and Dover, New Jersey. Also what is now the South Carolina Gas and Electric Company in Columbia, South Carolina; Florida Public Service Company, located at Orlando, Florida.

Q. Will you please proceed?

A. From October, 1922 to January 1925 I was electrical engineer of construction for these General Gas properties.

From January, 1925 to April, 1929 I was general superintendent of the Metropolitan Edison Company.

From April, 1929 to December, 1935 I was superintendent of Power Supply for Utility Management Corporation.

From December, 1935 to May, 1936, I was consulting Engineer for the E. M. Gilbert Engineering Corporation. The Utility Management Corporation absorbed the E. M. Gilbert Corporation as its engineering division. From May 1936 to date I have been vice-president and chief electrical engineer of both of these companies.

Q. Now, Mr. Sibley, are you acquainted with the physical facilities used by Jersey Central Power and Light Company and Public Service Electric and Gas Company at the points of interconnection between those companies, the connections or interconnections between those companies?

A. Yes, sir.

Q. You are acquainted with them personally?

A. Yes, sir.

Q. Are you also acquainted with the interconnection, that is, by personal inspection and observation, and do you know the connection between Staten Island Edison Corporation and Public Service Electric and Gas Company?

A. Yes, sir.

Q. Are you acquainted with and have you made studies concerning the facilities of the Public Service Electric and Gas Company at Mechanic Street, the connections or interconnections coming therein or going therefrom?

A. Yes, sir.

Q. Have you studied any of the charts, instruments and so on, that they have in that substation?

A. Yes, sir.

Q. As well as some that are not in the substation but that belong to Public Service Electric and Gas Company?

A. Yes, sir.

Q. Mr. Sibley, you know, do you not, that electric energy flows from Jersey Central Power and Light Company's South Amboy station? You are familiar with the South Amboy station of the Jersey Central Power and Light Company and have seen that, have you not?

A. Yes, sir.

Q. And you know that at certain times electric energy flows from that substation to the Mechanic Street substation of the Public Service Electric and Gas Company?

A. It does.

Q. I ask you as an engineer, Mr. Sibley, is it possible as a matter of engineering for Jersey Central Power and Light Company to direct or route any power into Staten Island?

A. It is not.

Q. Why not?

A. The only power that can enter the Staten Island Edison Company's system through the interconnection would be governed by the adjustment of the governors on the steam turbines in the Livingston generating station of the Staten Island Edison Corporation.

Q. Who does control the flow of energy from the Mechanic Street substation of Public Service Electric and Gas Company?

A. The Public Service Electric and Gas Company.

Q. Mr. Sibley, will you please describe from an engineering and operating standpoint the way the current received by Public Service Electric and Gas Company from Jersey Central Power and Light Company is handled after it leaves the Jersey Central Power and Light Company generators?

A. The electric power after leaving the generators at the South Amboy plant of the Jersey Central Power and Light Company enters transformers at 13,200 volts and is there stepped up to approximately 26,400 volts. It leaves this substation over two overhead circuits approximately 7/8 mile in length to the south bank of the Raritan River. Here it enters two submarine cables passing under the Raritan River until the cables meet Perth Amboy. From there they go in land cables in ducts to the Mechanic Street substation of the Public Service Electric and Gas Company.

Q. What happens there?

A. The power is then delivered to the bus bars of the Public Service Electric and Gas Company at the Mechanic Street substation in Perth Amboy.

Q. Have you seen this bus to which you are referring?

A. I have.

Q. Do you know what it consists of?

A. Yes.

Q. Have you seen the exhibit offered by the Commission which gives the straight line diagram, as I believe they describe it, of the bus bar at this Mechanic Street substation?

A. I have seen it.

Q. That is Exhibit No. 8. Will you please describe for the purpose of the record just what that bus bar consists of and describe any circuits in and out, if there are any circuits in and out, and tell us what they are, and also whether or not it is correct. This exhibit is substantially correct, isn't it?

A. Yes; this exhibit is correct.

Q. Will you proceed, please?

A. This exhibit is a one-line diagram of conditions as they exist there. Beginning on the left hand side of this diagram we have a circuit going to the General Cable Corporation. We then have a tap from this bus where power enters from the Jersey Central Power and Light Company, also where the power can be transferred in either direction to the Carteret circuit.

We also have on this bus section a circuit running directly to Metuchen and a bank of transformers reducing the voltage from 26,400 to 4,150 volts to supply the local load in the neighborhood of the Mechanic Street substation.

Proceeding toward the right hand side, we have an

oil circuit breaker which can be opened and isolate this section from the balance of the bus.

From the oil switch proceeding toward the right hand side of the diagram we have a circuit running to Metuchen. We have a second bank of transformers reducing the voltage from 26,400 to 4,150 volts: and there we meet another bus switch, this being an air-break type.

Proceeding further to the right we have the two cables running to the Staten Island Edison Corporation, a circuit running to Keasby, and on the extreme right hand end another circuit running to the General Cable Corporation.

Q. How many circuits attached to that bus are connected with general transmission circuits of the Public Service Electric and Gas Company in any?

A. There are four such circuits, two running directly to Metuchen and one running to Metuchen by way of Keasby and another by way of Carteret.

Q. In what direction does the energy on those circuits flow?

A. That is a matter of time and conditions and circumstances. It flows both ways over all of those circuits.

Q. In other words, electric energy will come in on those circuits to the bus bar, and at other times electric energy goes away from those bus bar on those circuits?

A. That is true.

Q. Would you say that condition prevails every day, that is, flowing in each direction?

A. I believe that is true.

Q. Have you been in the substation when you have seen that occur?

A. Yes, sir.

Q. Now, Mr. Sibley, we have traced the flow of electric energy from South Amboy to this bus bar you have described. What becomes of the electric energy after it hits that bus bar?

A. It is utilized to supply load requirements on the Public Service Electric and Gas Company.

Q. Would you say that it is absorbed into their system?

A. I did not understand the question.

Q. Would you say that it is absorbed into their system? Is that the proper way of putting it?

A. It is used to supply their requirements.

Q. Mr. Sibley, can you trace or earmark a kilowatt? You are a professional engineer. Can you trace or earmark a kilowatt? Mr. Grimsley thought that was a crude question when I put it to him. Perhaps you will think the same thing about it. I will put the same question to you that I put to Mr. Grimsley.

A. I will answer that question in the same way that Mr. Grimsley did. If you have a direct circuit to a given point you could pretty well identify the kilowatts to the point where another circuit met it. But where you have two lines converging at one point the identity of the Electric power and energy is lost.

Q. Now, Mr. Sibley, you say you have an operating and engineering knowledge and acquaintanceship with the Staten Island Edison Corporation properties. Is that correct?

A. That is correct.

Q. Do you know what the interconnection between Staten Island Edison Corporation and Public Service Electric and Gas Company is used for?

A. It is used to supply emergency power in both directions and economy power in both directions.

Q. What is economy power?

A. Economy power is that power which would be purchased by one company to replace energy generated by that company. It is always an arrangement between two companies where the generating facilities in one company

can be substituted for the generating facilities in the other company.

As to the price for the power, the arrangement is based upon savings which could be effected by producing this power on the part of the selling company's part as against the hypothetical cost of generating that power on the part of the receiving company. The savings thus effected are divided equally.

Q. Could you have economy power or economy flow power—which-ever is the correct term—if the purchasing company did not have adequate facilities at the time to generate this energy itself?

A. No, sir.

Q. Then economy power presupposes the existence on the part of the purchaser of sufficient generating capacity to generate that energy itself?

A. Yes, sir. And the cost is based upon that.

Q. What is emergency power?

A. Emergency power is that power which the company is forced to purchase because it has no other means of obtaining that power.

Q. At a particular time, I suppose.

A. At the time they need it.

Q. At such time what is known as the emergency arises?

A. That is correct—at any time any such emergency would arise.

Q. What is firm power?

A. Firm power is power which a company is obligated to deliver under a contract or purchase under a contract.

Q. Now, Mr. Sibley, is there any such thing as incidental power or slopover power? Do those terms convey anything to your mind?

A. Incidental power is that power which flows back and forth between two systems caused by variation in the power requirements of either one of the systems as com-

pared with the amount of steam being delivered to the turbines.

Q. Is this incidental power controllable by the two companies at the interconnection?

A. It is controllable to a certain extent. It cannot be controlled at the time it occurs but after it has occurred the governors can be so adjusted that you can reduce the power to almost zero through the tie-line.

Q. Mr. Sibley, have you studied the records of operation of Staten Island Edison Corporation with reference to the flow of energy between the interconnection with Public Service Electric and Gas Company from August 26, 1935 to March 14, 1938?

A. I have.

Q. Have you prepared a chart which shows this flow in either direction or both directions?

MR. McALLISTER: Between what dates did you ask?

MR. PAXSON: August 26, 1935 and March 14, 1938.

BY MR. PAXSON:

Q. Did you prepare such a chart, Mr. Sibley?

A. I did prepare such a chart.

Q. Is this the chart (indicating)?

A. It is.

MR. PAXSON: Mr. Examiner, I asked that this chart be marked for identification.

EXAMINER SPENCER: It may be marked for identification Respondent's Exhibit No. 6.

(The document above referred to was marked for identification Respondent's Exhibit No. 6.)

MR. McALLISTER: Possibly if Mr. Sibley were permitted to explain this chart we might understand it better.

MR. PAXSON: I have only asked that it be marked for identification.

MR. McALLISTER: I think it might be well to have the witness explain the chart.

EXAMINER SPENCER: You may proceed.

BY MR. PAXSON:

Q. Mr. Sibley, what does this chart which you have before you show? What is this chart? It is the result of your own study, isn't it?

A. Yes, sir. The data on this chart were taken from the records of the load dispatcher of the Staten Island Edison Corporation from the Staten Island Edison Corporation's records. This chart shows the kilowatt hours which have passed over the interconnection between Mechanic Street and Staten Island Edison Corporation each day for the period beginning August 26, 1935 and up to and including the 14th day of March, 1938.

The height of the graph above the base line shows the amount of kilowatt hours each day transferred from the Public Service Electric and Gas Company to the Staten Island Edison Corporation.

Q. That line has on the two ends the figure zero? Is that right?

A. The zero line has:

Q. The middle line?

A. The middle line.

Q. The middle line of these two graphs? Is that right?

A. That is right.

Q. Will you proceed, please?

A. The graph below the zero line indicates the kilowatt hours each day that have been transferred from the Staten Island Edison Corporation to the Public Service Electric and Gas Company.

The solid blocks in there represent—

Q. You mean those indicated in black?

A. Yes, sir. The solid blocks represent both emergency and economy energy which has passed over this interconnection. The value of this scale shows that one millimeter is the first small line up above the zero line and is equal to 2,000 kilowatt hours.

The break in this line in the early part of May 1937 shows a time when there was no energy passing over this interconnection because of cable trouble.

This chart shows that day by day and month by month and year by year the amount of power transferred in one direction is practically equal to the amount of power transferred in the opposite direction.

Q. You are speaking now about the incidental power?

A. This chart represents all power transferred over this interconnection.

Q. But the parts blocked in solid black represent the economy and emergency group?

A. They do.

Q. So the flow as shown by the other two lines represent incidental?

A. The greater portion of the chart is incidental power, and it was drawn to show that the incidental power balances out each day, each month and each year.

BY MR. McALLISTER:

Q. Will you repeat that answer, please?

A. The greater portion of the chart is incidental power, and it was drawn to show that the incidental power balances out each day, each month and each year.

BY MR. PAXSON:

Q. Mr. Sibley, is all of the economy flow and emergency power shown on this chart in this solid black box?

A. No, sir. There are times when we could not indicate on this graph all of the emergency power because

it was too small, the smallest division being 2,000 kilowatt hours.

Q. Emergencies which have been testified to as occurring for a period of a minute or two minutes could not be shown on this chart, could they?

A. No, sir. As I recall the previous testimony, some of these emergencies were of one minute or two minutes duration. Therefore, a thousand kilowatts for one minute would be only 1/60th of that value, or approximately 17 kilowatt hours, which you could not show on a graph with this scale.

MR. PAXSON: May it please the Commission, I now offer this chart in evidence.

EXAMINER SPENCER: Is there any objection?

BY MR. McALLISTER:

Q. Just to correct something that seems to be obvious, Mr. Sibley, would that be 17 or 107?

A. Well, for one minute it would be 1,000, divided by 60. I guess it is 17.

Q. I think you are right. I figured in mind that it was 107.

EXAMINER SPENCER: The chart will be received as Respondent's Exhibit No. 6.

(The document above referred to was received in evidence and marked Respondent's Exhibit No. 6).

BY MR. PAXSON:

Q. Mr. Sibley, will you please tell us from respondent's exhibit No. 4, which was introduced this morning by Mr. Morris, how much emergency energy, expressed in kilowatt hours, was purchased by Staten Island Edison Corporation from Service Electric and Gas Company from August 26, 1935 to March 14, 1938? I believe the totals are on the bottom line.

MR. McALLISTER: As shown by this exhibit?

MR. PAXSON: That is correct. I mean as shown by this exhibit.

THE WITNESS: 8,125 kilowatt hours.

BY MR. PAXSON:

Q. Does that represent a large amount of electric energy? In a practical way what would it amount to?

A. "Large amount", of course, is a relative term. It represents something less than 300 kilowatt hours per month over this period.

From this General Electric Handbook I find that the home water heater will average 340 kilowatt hours per month. So that energy would not supply the average domestic hot water heater for this period.

Q. How much economy flow energy is shown on respondent's exhibit No. 4 as having been purchased by Staten Island for the same period of time?

A. 395,000 kilowatt hours.

Q. That is a much larger figure. Would you consider that a large amount of energy?

A. Again that is a relative term.

Q. Just what could you do with that energy?

A. That is an average of 18 kilowatt hours per hour over that period. That might run a 25-horse-power motor continuously, if it be efficient at 100 per cent.

Q. If it did not have that efficiency it couldn't even do that?

A. Well, it would be a smaller motor.

Q. Now, Mr. Sibley, you have studied the figures showing the generation of Jersey Central Power and Light and Staten Island Edison Corporation for the period from August, 1935 to March 14, 1938?

A. I have. But I would like to modify that a little bit. I don't remember studying the generation of the Staten Island Edison Corporation. I studied the genera-

tion of the Jersey Central Power and Light Company and the transfer of energy between the Staten Island Edison Corporation and the Public Service Electric and Gas Company.

Q. Both ways on this transfer? Is that correct?

A. Yes, sir.

Q. Does this compilation represent the figures as to generation of the Jersey Central Power and Light Company by months and the transfers of energy from Staten Island to Public Service Electric and Gas Company, and vice versa, for those same months?

A. It does.

Q. Was this compilation prepared by you or under your direction?

A. Yes, sir.

Q. From figures that were made available to you by both companies concerned?

A. That is correct.

Q. Will you please explain this compilation? What does it show, Mr. Sibley?

A. The first column represents the time in months from August, 1935, up to and including March, 1938.

The second column is the total net kilowatt hours generated by all the generators of the Jersey Central Power and Light System. That is headed column "A".

Under Column "B" is shown the amount of kilowatt hours each month that the Staten Island received from Public Service Electric and Gas Company.

Under column "C" we have shown the kilowatt hours each month transferred that the Public Service Electric and Gas Company received from the Staten Island Edison Corporation.

Column "D" is the difference between Column "B" and column "C". In other words, it shows how far the operator missed balancing the flow of power over the

interconnection between Pubic Service Electric and Gas Company and Staten Island Edison Corporation.

In the next to the last column—

Q. Just a moment before we come to those columns, Mr. Sibley, so that we may clarify this compilation. This covers all transfers of energy, whether emergency, economy flow or incidental power? Is that correct?

A. Yes, sir. That is the total.

Q. So that this net interchange does not necessarily show any failure to balance incidental flow since the other energy is included in these figures? Is that correct, Mr. Sibley?

A. That column is really the algebraic sum of Column "B" and Column "C".

Q. Now, Mr. Sibley, will you proceed, please?

A. The next to the last column, headed $\frac{B}{A}$ in per cent—these figures were obtained by dividing the kilowatt hours in column "B" by the kilowatt hours given in column "A".

Q. Expressed in terms of percentage?

A. Yes, sir.

Q. So that—?

A. So that should all of the power—which, of course, it does not, flowing in the interconnection from the Public Service Electric and Gas Company to the Staten Island Edison Corporation—come from the Jersey Central Power and Light Company, in the case of August, 1935, that percentage would be 1.04 per cent. And any other month can be determined in the same manner. They are all less than one per cent, with one or two exceptions.

Q. What is the lowest and what is the highest?

A. The highest is 1.33 per cent.

Q. It is 1.36 right above that, isn't it?

A. Oh, yes; 1.36 and 0.73—practically three-quarters of one per cent.

Q. How about December, 1935?

A. That is higher.

Q. I mean 1936.

A. That is a little lower. That is 0.69 per cent.

Q. What does the other column to the right of that show?

A. The column to the right was obtained by dividing the kilowatt hours in column "D" by the kilowatt hours in column "A". This is a relation between the net flow over this interconnection as compared with the total generation by all generators of the Jersey Central Power and Light Company.

Q. As this comparison is made, expressed in percentages, Mr. Sibley, it becomes very slight indeed, doesn't it?

A. Yes, sir. That varies here. I see a low per cent of 0.003 in the case of November, 1937, and the highest one I note is 0.478 per cent in June, 1936.

Q. Yes, and in February, 1936, you have one even lower than that, haven't you?

A. Yes, sir. That is 0.002 per cent.

Q. Then, as I understand it, in preparing this chart for purposes of quantitative comparison only you are assuming all of the Staten Island energy which comes over this tie or interconnection came from the Jersey Central Power and Light Company. Is that correct?

A. That is correct.

MR. PAXSON: Now, Mr. Examiner, I offer in evidence this compilation.

EXAMINER SPENCER: Is there any objection?

MR. McALLISTER: No objection.

EXAMINER SPENCER: The compilation will be received in evidence and will be marked Respondent's Exhibit No. 7.

(The document above referred to was marked Respondent's Exhibit No. 7 and was received in evidence)

BY EXAMINER SPENCER:

Q. Let me ask you one question, Mr. Sibley, as to this next to the last column. That is 1.4 per cent of what?

A. That is obtained—

Q. I know, Mr. Sibley, but that represents 1.04 per cent of the total amount of electricity generated by the Jersey Central Power and Light Company?

A. The amount which has flowed from the Public Service Electric and Gas Company to the Staten Island Edison Corporation. We assume that if all of that had come from the Jersey Central Power and Light Company—

Q. That it would have been 1.04 per cent of the generated power?

A. That is correct.

BY MR. PAXSON:

Q. Now, Mr. Sibley, as an engineer would you say that there is any relation between the flow of energy received by Public Service Electric and Gas Company from Jersey Central Power and Light Company at the Mechanic Street substation and the power which may from time to time flow from Mechanic Street substation of the Public Service Electric and Gas Company to Staten Island Edison Corporation?

MR. McALLISTER: Mr. Examiner, I don't understand what the question means.

EXAMINER SPENCER: Will you repeat the question, please, Mr. Paxson?

MR. PAXSON: May I ask the Reporter to read the question?

(The question was then read by the Reporter.)

MR. McALLISTER: I am objecting to that, Mr. Examiner. I don't know what is meant by the term "relationship." If counsel for respondent will state what he means by "relationship," I may have no objection to the question.

EXAMINER SPENCER: I do not understand it myself. Mr. Paxson, for my guidance, as well as that of Mr. McAllister, will you—

MR. PAXSON: I shall withdraw the question rather than explain it.

EXAMINER SPENCER: There is no disposition to exclude it necessarily. I just don't understand what it means.

MR. PAXSON: I shall withdraw it and express it by graphs. Perhaps we can get around to it in that way, Mr. Examiner.

EXAMINER SPENCER: All right, Mr. Paxson. You may proceed. But, frankly, these curves are harder for me to understand than the English language.

MR. PAXSON: Possibly an engineer can explain them. But I agree with you myself personally, Mr. Examiner.

BY MR. PAXSON:

Q. Mr. Sibley, I hand you a graph. Will you please tell me what that represents.

And, Mr. Examiner, I shall ask that that graph be marked for identification as Respondent's Exhibit No. 8.

THE WITNESS: This is a photostat of two charts taken from graphic watt meters on the switch-

board in the Mechanic Street substation of the Public Service Electric and Gas Company in Perth Amboy.

The charts represent time from 12:00 midnight on August 12, 1936 until 5:00 a. m. on August 13th. Both charts have coincident times.

The upper chart shows the interchange of energy over the tie line between the Staten Island Edison Corporation and the Public Service Electric and Gas Company.

The lower chart represents the amount of power flowing from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company.

The vertical divisions on this chart represent a period of five minutes. In other words, there would be 12 such divisions to represent an hour. This is true on both the upper and the lower charts.

BY MR. McALLISTER:

Q. Would that be the vertical subdivisions or the horizontal subdivisions?

A. I said the vertical lines. This is a vertical line this way (indicating), and that divides the time into five minutes duration.

BY MR. PAXSON:

Q. In other words, Mr. Sibley, between 4:00 a. m. and 5:00 p. m., there are vertical lines which still further subdivide the time into periods of five minutes? Is that right?

A. The total period on this chart is but five hours, approximately, and each hour has been divided into 12 parts; so that each division is for a five minute interval.

Referring to the upper graph it will be noted that a line running through the center of this chart is marked zero. That is a time when a point on this graph would

represent no power flowing in the interconnection. Every time you see the graph above this zero line there is power flowing from the Staten Island Edison Corporation to the Public Service Electric and Gas Company.

Q. During that interval of time represented by the graph, Mr. Sibley?

A. And any time that the graph shows a distance below this zero line power is flowing from the public Service Electric and Gas Company through this interconnection to the Staten Island Edison Corporation.

Each division on this upper graph represents 400 kilowatt hours.

Let me modify that statement. That is, each vertical division, I mean.

Referring to the lower chart, colored in blue, there is also a zero line in the center of this chart, and distances above this line represent the amount of power flowing at any instant from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company. The space between the horizontal lines has a value of 2,500 kilowatts.

These charts were taken from these automatic graphic watt meters and photostated. The only marks added to this photostat are the notations from Staten Island Edison Corporation to Public Service Electric and Gas Company and from Public Service Electric and Gas Company to Staten Island Edison Corporation.

Of course, the color was added to the photostat.

The object in preparing this exhibit was to show a case where economy power was flowing from Jersey Central Power and Light Company to Public Service Electric and Gas Company and that during this time an emergency arose on the Staten Island Edison Corporation's property which required the Staten Island Edison Corporation to purchase emergency power. This quantity of emergency power so obtained is shown in red on the upper graph.

The object in placing these charts so that the time would be coincidental was to show that a draft of power by Staten Island Edison Corporation from the Public Service Electric and Gas Company had no effect whatsoever on the power delivered by Jersey Central Power and Light Company to the Public Service Electric and Gas Company:

Q. As an engineer, Mr. Sibley, this graph shows that result?

A. It is absolutely what I expected to see.

EXAMINER SPENCER: At this time, gentlemen, we will take a short recess.

(Whereupon, a short recess was taken, after which the following occurred:)

EXAMINER SPENCER: The hearing will be resumed.

BY MR. PAXSON:

Q. Now Mr. Sibley, taking up the upper portion of this chart, starting from the right you have these black lines which look something like a jig saw puzzle to me, up and down. What does that represent?

In other words, there is no coloring there and you have the line that goes above zero and below zero up and down. Does that represent incidental power?

A. That line was drawn by a pen on this graphic watt meter. This pen actually follows the flow of electrical energy through the interconnection. And every case where a mark appears above the line entitled zero, power is flowing from the Staten Island Edison Corporation to the Public Service Electric and Gas Company, and every time this line appears below this line marked zero, power is flowing from the Public Service Electric and Gas Company to the Staten Island Edison Corporation.

Q. Then, taking the first half hour from 12 to 12:30 a. m., what does that line show as to the flow of power in either direction?

A. The photostat unfortunately is blurred between 12:25 and 12:30 a. m. on August 13th. However, for the first 25 minutes, from midnight, August 12th, until 12:25 a. m. on August 13th there are approximately 12 instances where power flowed from Staten Island Edison Corporation to the Public Service Electric and Gas Company. During this same interval there were 12 instances where power was flowing from Public Service Electric and Gas Company to Staten Island Edison Corporation.

Q. In other words it shows an oscillation back and forth for that short interval of time showing the power flowing both ways in 25 minutes 12 times?

A. This graph accurately reflects what is transpiring through this interconnection.

Q. Now take this large portion which is colored in red in the upper part of this graph, somewhere before half past two in the morning until 3:30, and then fading away up to 4 a. m. You stated that represented an emergency.

A. That is right.

Q. Is that the largest draft of emergency power taken by the Staten Island Edison Company from Public Service Electric and Gas Company during the period August 26, 1935 to March 14, 1938?

A. It is.

Q. And that is the reason you selected that?

A. That is correct.

Q. Now over further to the right of the larger portion colored in red you have marks also colored in red. That really doesn't show any emergency, does it?

A. The object of the color here was to show the times when power was flowing from the Public Service Electric Company to the Staten Island Edison Corporation.

Q. Well, now, I will put my original question I withdrew. Reading this chart which you have before you as an engineer, can you adduce any inference as to whether there is or is not any relationship between the flow of power from Public Service Electric and Gas Company to Staten Island Edison Corporation and the flow from Jersey Central Power and Light Company to Public Service Electric and Gas Company?

MR. McALLISTER: Mr. Examiner, I have no objection to that question being answered if the witness will state what he understands by the term relationship.

EXAMINER SPENCER: All right, sir.

MR. PAXSON: All right, let the witness state it.

EXAMINER SPENCER: All right, sir.

THE WITNESS: The graph covered in blue—

MR. McALLISTER: (interposing) Mr. Examiner, I want that term defined before the question is answered.

EXAMINER SPENCER: What?

MR. McALLISTER: The question of relationship. Now what does he understand through the use of the word relationship as used in the question? I am perfectly willing to have him answer the question when that is explained.

EXAMINER SPENCER: Does counsel for the respondent wish to explain what he means by relationship?

MR. PAXSON: By relationship I mean this, does an extraordinary draft of power as shown by this

graph in case excess of emergencies by Staten Island on Public Service, does that in any way affect the flow of energy from Jersey Central Power & Light Company to Public Service Electric and Gas Company.

MR. McALLISTER: If the chart shows that and the witness so states I have no objection to his answering the question.

EXAMINER SPENCER: All right, you may answer, Mr. Sibley.

THE WITNESS: The blue portion of this chart shows the amount of power flowing at any instant and all times from the Jersey Central Power & Light Company to the Public Service Electric and Gas Company. The curve colored in red shown on the upper chart shows the power at any time and all times that is flowing between Staten Island Edison Corporation and the Public Service Electric and Gas Company.

An inspection of this chart shows that when the emergency draft of power by the Staten Island Edison Corporation from the Public Service Electric and Gas Company existed that there was no noticeable change in the variation with which power was being delivered from the Jersey Central Power & Light Company to the Public Service Electric and Gas Company.

BY MR. PAXSON:

Q. Does this graph show the time of this emergency on the Staten Island Edison Corporation's lines that there was any increase in flow of power from Jersey Central Power & Light Company to Public Service Electric and Gas Company?

A. None that I can see.

Q. Does not this graph also show that the increases in power taken by Staten Island Edison Corporation at this time from Public Service Electric and Gas Company

resulted in increased generation on the System of Public Service Electric and Gas Company?

MR. McALLISTER: May I have that question read, please?

EXAMINER SPENCER: Read the question, Mr. Reporter.

(The reporter thereupon read the pending question as recorded.)

THE WITNESS: It shows that.

BY MR. PAXSON:

Q. Now, Mr. Sibley, Mr. Grimsley, when he was on the stand testified that Jersey Central Power & Light Company operates in synchronism with certain other New Jersey Public Service companies which in turn he stated operated in synchronism with Public Service companies outside the state of New Jersey.

Q. What is operating in synchronism?

A. Synchronism implies not only identical speeds, but coincident pulsation of the electric voltage or power.

Q. Now, Mr. Sibley, I ask you as an engineer whether or not 1 kilowatt of energy flows over any interconnection merely because the companies operating the interconnection may happen to operate in synchronism?

A. Electric power does not flow because machines are operated in synchronism.

Q. Now does the fact that Jersey Central Power & Light Company is synchronised with other companies show of itself that Jersey Central ever supplies any electricity that was utilized in either New York or Pennsylvania?

A. Not through the mere fact that it was in synchronism with other generating equipment.

Q. What things have to coincide then before Jersey Central supplies any substantial amount of power to any other company? If it is not just synchronism, what is it?

A. In order to get electrical energy from the generators on the Jersey Central Power & Light System into the Public Service Electric and Gas Company System it would be necessary that the generators of these two systems are operating in synchronism.

Assuming that the facilities to transmit power were adequate, this would only flow from the Jersey Central System to the Public Service System if an additional amount of steam was admitted to the turbo-generators beyond that which was required to carry the load of the Jersey Central Power & Light Company's own customers.

Q. Now suppose Jersey Central had no interconnection with Public Service, would it still be possible for Public Service to operate its interconnection with Staten Island Edison Corporation?

A. Yes, sir.

Q. And any other interconnection it might have with Philadelphia Electric Company or Pennsylvania Power and Light Company?

A. Yes, sir.

Q. Is Jersey Central Power & Light Company a necessary source of supply for Public Service to meet the requirements of these interconnections?

A. No.

MR. PAXSON: I wish to offer this chart at this time as an exhibit.

EXAMINER SPENCER: Mr. Paxson, will you be good enough to describe this chart? The other reporter was here when you identified it.

MR. PAXSON: If you don't mind I am going to ask Mr. Sibley to describe it. He is a technical engineer and I might make a bad job of it.

EXAMINER SPENCER: This will be sufficient showing power interchange between Staten Island Edison Corporation and Public Service Electric and Gas Company, and between the Jersey Central Power & Light Company and Public Service Electric and Gas Company, is admitted as previously identified by the witness and identified as Exhibit No. 8.

(The document referred to was marked Respondent's Exhibit No. 8 and received in evidence.)

BY MR. PAXSON:

Q. Now, Mr. Sibley, this graph which we have just introduced as an exhibit shows of course only one case of an extraordinary emergency draft by Staten Island Edison Corporation on Public Service Electric and Gas Company. Did you examine the recording instruments for other instances?

A. I did.

Q. What did they show? Are they comparable or not?

A. They show the same relationship. The reason for this particular chart was because in this duration of time from August 26, 1935 to March 14, 1938, inclusive, it was at a time when the Staten Island Edison Corporation required more emergency power from Public Service Electric and Gas Company than any other time. In fact, I believe the energy purchased during this emergency was approximately 40 per cent of all emergency power furnished to the Staten Island Edison Corporation.

BY EXAMINER SPENCER:

Q. For what period of time?

A. For the period of time from August, 1935 to and including March, 1938.

BY MR. PAXSON:

Q. Now, Mr. Sibley, in your opinion as an engineer, would the transfer of economy power between Jersey Cen-

tral and Public Service increase the flow of power between Public Service Electric and Gas Company and the Philadelphia Electric Company?

A. No.

Q. Why not?

A. The transfer of economy power is predicated on the assumption that this power which is supplied as economy power would otherwise be generated on a certain machine. Therefore, it would not change the forecast or relation between the transactions of the Public Service Electric and Gas Company and the Philadelphia Electric Company.

Q. Now, would the transfer of economy power between Public Service Electric and Gas Company and Philadelphia Electric Company increase the flow of power between Jersey Central and Public Service?

A. No. The only thing that determines between the Jersey Central Power & Light Company and the Public Service Electric and Gas Company is the amount of steam admitted to the generators on the System of the Jersey Central Power & Light Company.

Q. Is that what governs the actual flow of power between Jersey Central and Public Service?

A. It is.

Q. Now, Mr. Sibley, are you acquainted with the connection between the Jersey Central Power & Light Company and the Public Service Electric and Gas Company at Wrightstown and New Lisbon?

A. Yes, sir.

Q. You have examined that?

A. Yes, sir.

Q. Well, will you tell us something about that connection? Where does the power come from which flows to Jersey Central Power and Light Company at those points, Wrightstown and New Lisbon?

A. May I have a map?

EXAMINER SPENCER: Yes.

MR. McALLISTER: Will the witness identify the map? I think that is Intervenor's Exhibit No. 1 you are referring to, is it not?

THE WITNESS: That is correct with the exception I have traced it back into Burlington.

MR. McALLISTER: That is all right, if you can describe it so we will be able to indicate on the record—

THE WITNESS: (interposing) There is no objection to my having this map?

MR. McALLISTER: None whatever, except that if you use a map which is not the same one we have or the same one in the record it will be rather difficult for us to follow.

THE WITNESS: I just wanted to refresh my memory on Burlington, Mt. Holly and Birmingham.

MR. McALLISTER: That is all right if you want to refresh your memory. I know how difficult it is to follow these things if they are not on the map.

THE WITNESS: The power supplied by the Jersey Central Power & Light Company to the New Lisbon territory comes from the Burlington Station.

BY MR. PAXSON:

Q. You mean power supplied by Jersey Central or to Jersey Central, pardon me. Go ahead.

A. The Burlington Station, over two 226 K. V. lines as far as Mt. Holly. There is a single circuit 26 K V line from Mt. Holly to the Birmingham Substation of the Public Service Electric and Gas Company.

MR. McALLISTER: We don't have those points on our map.

THE WITNESS: Here is Burlington here, and I am telling about this line. I believe Mr. Grimsley testified about that.

MR. McALLISTER: Not about this connection. I followed him at the time.

THE WITNESS: I went over the ground and took these notes and put them on the map myself.

MR. McALLISTER: Just a moment. Off the record.

EXAMINER SPENCER: Off the record.
(Discussion off the record.)

EXAMINER SPENCER: On the record. The witness may proceed.

MR. McALLISTER: Mr. Paxson, may we consider this map, which is included in the Public Service Electric and Gas Company report to the Commission, which the witness says shows what he is describing accurately, could we consider that a part of the record, although I haven't offered it?

MR. PAXSON: I am perfectly willing this be considered a part of the record if limited to what Mr. Sibley testifies to. I haven't studied the map sufficiently to know anything about the voltage of other lines, but to the extent he testifies to it will be all right.

EXAMINER SPENCER: All right, proceed.

THE WITNESS: At the Birmingham Substation there are—

BY MR. PAXSON:

Q. (interposing) That belongs to Public Service.

A. To the Public Service Electric and Gas Company.

BY EXAMINER SPENCER:

Q. Is that located in New Jersey?

A. Yes, sir.

EXAMINER SPENCER: All right.

THE WITNESS: There are two banks of transformers, the GE transformers with a rating of 2,000 KVA, transform all this power from 26,400 volts to 4,000 volts. From this 4,000 volt bus are supplied local distribution. There is a bank of 2,000 KVA Pittsburgh transformers stepping this 4,000 volts up to 13,200 volts. It is delivered to a 13,200 volt line as far as Comical Corners. At Comical Corners is located a watt meter which supplies the New Lisbon Substation of the Jersey Central Power & Light Company. In those substations three 100 KVA transformers step the voltage down from 13,200 volts to 4,000 volts. Beginning at Comical Corners and going toward Wrightstown there is a tap into Camp Dix, a customer of the Public Service Electric and Gas Company. A short distance beyond Camp Dix there is a substation adjacent to the town of Wrightstown which transforms the power from 13,200 volts to 4,000 volts. The capacity of this substation is 300 kilo volt amperes.

Q. Now, Mr. Sibley, would you say that line or lines from Birmingham right through to New Lisbon or Wrightstown are distribution lines or transmission lines?

A. They are distribution.

Q. And these lines are used, or rather this connection is used by the Public Service purely for purposes of distribution?

A. Yes, sir.

Q. Now, Mr. Sibley, you heard some testimony from Mr. Grimsley about the power interchange arrangement between Public Service Electric and Gas Company, Philadelphia Electric Company and Pennsylvania Power and

Light Company, which he variously described as an interconnected system and also as a power pool.

Based on your experience as an engineer and your knowledge of these different systems, what is a power pool?

A. In the sense used, it is an arrangement whereby the Philadelphia Electric Company, Pennsylvania Power and Light Company, the Public Service Electric and Gas Company would operate as if they were under common management, under one load director, so that power could be generated in the cheapest possible manner and that the savings accruing from such operation would be proportionately divided between the contracting parties.

Q. Is this power pool arrangement based on delivery of firm power or not?

A. This power pool derives its savings principally by deferring plant investment on the three properties. There is considerable yearly diversity between the Public Service Electric and Gas Company and the two companies operating in Pennsylvania.

Q. Now, Mr. Sibley, have you seen Exhibit No. 11 introduced by the attorney for the Federal Power Commission, or by Mr. Grimsley rather?

A. Yes, I have.

Q. Have you a copy of the exhibit before you, Mr. Sibley?

A. I have.

Q. What is this exhibit entitled?

A. Public Service Electric and Gas Company Mechanic Street Substation instrument readings recorded on substation log sheets.

Q. Now this exhibit purports to give the instrument readings in various columns for different circuits. Is that correct?

A. That is correct.

Q. Now the first column Jersey Central Power & Light Company in, that is expressed in kilowatts, is it not?

A. It is.

Q. The other columns, what are they expressed in?

A. The Staten Island Edison Corporation out, is expressed in kilowatts.

Q. When you come to Mechanic Street Substation we have a column designated local load. That is expressed in kilowatts, is it?

A. That is expressed in kilowatt amperes.

Q. And all the other columns showing general cable load, Carteret, Keasby and Metuchen is all expressed in amperes, are they not?

A. That is correct.

Q. Have you examined in the Mechanic Street Substation the recording instruments from which these instrument readings were taken?

A. I have.

Q. Can you explain to me what this is, Mr. Sibley?

A. That is a dial taken from a Weston Ammeter and is a facsimile of that of the ammeters indicating the amperes in the general cable circuits.

Q. Just what does this show?

A. The pointer moves across this scale, the position of which indicated the quantity of amperes flowing through the primary circuit.

Q. Now if there were amperes indicated on the ammeter of which I understand this is a face and the amperage was less than 50 are there any marks there to indicate those readings?

A. No.

Q. Then, if the amperage recorded on this ammeter, of which this is a face, were less than that, how can anyone determine the amperage?

A. It is impossible to determine with any degree of accuracy the amperes which would be flowing when the

pointer stood anywheres between zero and 50, which is the lowest division that the instrument maker has placed upon this scale.

Q. Now taking the column on this exhibit which shows the General Cable load and it is numbered (1), showing the amperage, how is that number made up? It is designated on the last sheet of this exhibit, is it not, sheet 7?

A. These readings are the sum of 6 ammeter readings.

Q. In other words, in the first column where you have amperes 135, that represents the sum of 6 ammeter readings. Does that mean there are 6 meters which are used to measure the amperage going out on that general cable load?

A. That is true.

Q. And I notice in this column a number of readings given as 60 and 75. That would mean there were 6 readings on 6 separate ammeters which, the indications are, the readings would be 10, is that right?

A. That is correct.

Q. Do you consider as an engineer that those readings which are expressed in amperes are in any sense accurate in this exhibit where such an instrument is employed?

A. No, these readings are very unreliable.

Q. Pure guesswork, isn't it?

A. Judgment on the part of the operator.

Q. Who sees the indicator flicker somewhere between zero and 50 and then writes something down?

A. That is correct.

Q. Is there any occasion or need in the Mechanic Street Substation for having any more accurate recordings?

A. No.

Q. Why is that?

A. It is the general practice between operating companies that feeders running from one substation to the other be supplied with an indicator so that in case one of the line wires should become open it would immediately be noticeable to the switchboard operator. In the case of General Cable Company, these instruments have no other purpose than just that. There are located in the General Electric Company Station, General Cable Company Station, the integrating watt-hour meters, from which the bills are calculated. These watt-hour meters are only read for billing purposes.

Q. And the company doesn't depend in any way upon these meters for its billing or for determining the quantity of energy which goes out to General Cable?

A. I would say they did not.

Q. And the same criticism which applies to General Cable applies to all these other readings which are expressed in amperes?

A. It applies to the ammeters on the transformers, readings of power for local distribution.

Q. Now, Mr. Sibley, these readings, what are they, do they express any quantity of energy that may or may not be taken, or what do they express?

A. They do not express energy. They indicate at any particular time amperes flowing in the primary circuit.

Q. They just register momentary flow?

A. The pointer follows the amperes in the primary circuit.

Q. And there is no recordation of the load or anything like that?

A. No.

Q. They are not designed to do that?

A. No.

Q. Then as a result of these readings would you say this exhibit was accurate or inaccurate in reaching the conclusions expressed therein?

A. The conclusions derived from these readings are very questionable.

Q. In making any such exhibit as here made up would you depend on any such readings as can be gained from that ammeter?

A. No.

MR. PAXSON: Now, if the Commission please, I don't care to introduce as an exhibit this piece of metal, but I would like the opportunity to later substitute a photostatic copy thereof. That is part of a valuable machine and I brought it for physical demonstration.

EXAMINER SPENCER: May I ask where it came from?

THE WITNESS: That particular dial came from one of the substations of the Metropolitan Edison Company System. It is identical to the dials on the Weston Ammeters indicating the amperes flowing in the General Cable circuits out of Mechanic Street.

EXAMINER SPENCER: Does counsel for the Commission have any objection?

MR. McALLISTER: Just a moment until I find out something about it, please. We have no way of identifying that, Mr. Examiner. If it is a photostat of the instrument installed down there I have no objection to that.

MR. PAXSON: Mr. Examiner, this man has just testified it is identical. We could not lift the Public Service machine and bring it and we could not take it apart. He has testified it is identical.

THE EXAMINER: Any objection?

MR. McALLISTER: Yes, Mr. Examiner, I object to the receipt of the dial out of a machine of Metropolitan Edison Company. If I had any way of verifying that, if there is any reason to know if that is the kind of machine that is running down there, if such testimony was going to be introduced, we had the superintendent of the, or the assistant division manager of the Public Service Electric and Gas Company here. He could have identified it as being similar to the dial in the face of that instrument. There was ample opportunity to establish that.

MR. PAXSON: Let me say, Mr. McAllister, there was not ample opportunity. You gave me no opportunity at all. We didn't even know this exhibit was going to be presented at that time. We had not read them, and we were given no opportunity to check, and I remember it, this witness departed on the afternoon of the day he testified. This Commission is not bound by any formal rules of evidence. This witness, whose credibility has not been impeached, says this is identical. It is not the same, but identical. It is perfectly proper evidence.

Of course I can understand why Mr. McAllister doesn't want it introduced.

MR. McALLISTER: As far as the instrument is concerned or anything else, I have no objection to putting it in, if it is a copy of the one that is down there, but to take a dial out of some other machine and photostat that and put it in, there is only one way I could determine it would be to send a man down there.

MR. PAXSON: Your men have made these readings and studied them. Let them get on and combat it.

MR. McALLISTER: They told me they paid no attention to the make of the machine or anything of the kind. It is not properly supported.

EXAMINER SPENCER: The Examiner will rule that a photostatic copy of this dial may be filed when properly certified as being an exact replica of the dial in use at this plant. I think they are entitled to that.

MR. PAXSON: No further examination.

EXAMINER SPENCER: Do you want to begin your cross-examination this afternoon, Mr. McAllister?

MR. McALLISTER: No, I think we might as well go over. We really could not do very much in the few minutes remaining.

EXAMINER SPENCER: Would it suit you to adjourn now and convene tomorrow morning at ten o'clock?

MR. PAXSON: Yes.

EXAMINER SPENCER: We will take a recess until ten o'clock tomorrow morning.

(Whereupon, at 4:15 o'clock p. m., an adjournment was taken until 10:00 o'clock a. m., Wednesday, October 5, 1938.)

Washington, D. C.,
Wednesday, October 5, 1938.

The hearing in the above-entitled matter was resumed, pursuant to adjournment, in Room 1201 Hurley-Wright Building, 1800 Pennsylvania Avenue, N. W., Washington, D. C., at 10:00 o'clock a. m.

Before:

Carroll B. Spencer, Trial Examiner.

Appearances:

As heretofore noted.

PROCEEDINGS

EXAMINER SPENCER: The hearing will be resumed. Gentlemen, yesterday just before recess there was a question under discussion as to the admission of a dial as an exhibit on behalf of the respondent and, at that time, I stated that a photostatic copy of the dial could be filed at a later date, if properly certified. With respect to that it will be necessary to fix a form of certification at the date of filing and at this time I will announce that final and complete ruling on that will be reserved until later in the day.

MR. PAXSON: As to the date when it will be filed?

EXAMINER SPENCER: As to the whole question. I want to give it further consideration. Call your witness, Mr. Paxson.

Whereupon

EDGAR DOW SIBLEY,

the witness on the stand at the time of adjournment, resumed the stand and testified further as follows:

Cross Examination

EXAMINER SPENCER: You may proceed with cross-examination, Mr. McAllister.

BY MR. McALLISTER:

Q. Mr. Sibley, in testifying yesterday regarding the interconnection at Wrightstown and New Lisbon, the record in some parts seems to indicate power at that point was supplied at that point by Jersey Central Power & Light Company, but I think you made it clear, did you not, that Jersey Central was the company that received the energy through that interconnection?

A. That was my intention.

Q. And by reference to the map, which is Respondent's Exhibit No. 1, you indicated that the energy to that interconnection came from the generating station of the Public Service Electric and Gas Company at Burlington, is that true?

A. It comes from the bus bar, the 26,400 bus bar.

Q. And then via the route you described, that energy is delivered to Jersey Central at the connection that is sometimes referred to as Wrightstown-New Lisbon or Wrightstown-Comical Corners?

A. That is correct. One meter is located close to Comical Corners and the other is located at the Wrightstown Substation.

Q. Is there a substation and generating plant at Burlington?

A. Yes, I believe there is.

Q. What is the capacity of that generating plant?

A. I was never in it.

Q. How about the substation, are you familiar with that?

A. No, I was never there.

Q. Do you know there is a substation there?

A. Yes.

Q. I am trying to get the facts. What is the situation there at Burlington which you say is the source of this energy?

A. I drove over to Burlington from Reading and picked up these two 26 KV lines as they left Burlington starting for this Comical Corners point. The bus bars in Burlington and the bus arrangement in Burlington and generating machinery there, I have no knowledge of.

Q. That is the extent of your knowledge regarding the source of this energy coming from this interconnection at Wrightstown and Comical Corners?

A. Yes, sir.

Q. In order that the record may be clear in that regard, your testimony is to be understood then as indicating the beginning of those lines as you observed them and your driving along and tracing them as best you could in that manner to the various points that you described? Is that true?

A. These two lines were observed to go in toward this substation and power house. I saw they went toward it. What was in the substation or power house I have no first-hand knowledge of.

Q. Or how the connection was made or anything regarding that, that would indicate what is the arrangement in the power house and substation?

A. I have no first-hand knowledge of that.

Q. On page 664 of the record, yesterday, Mr. Sibley, the following question was put to you:

"Q. I ask you as an engineer, Mr. Sibley,—"

MR. PAXSON: (interposing) What page is that, Mr. McAllister?

MR. McALLISTER: Page 664.

MR. PAXSON: Page 664?

MR. McALLISTER: Yes.

"Q. I ask you as an engineer, Mr. Sibley, is it possible as a matter of engineering for Jersey Central

Power & Light Company direct to route any power into Staten Island?"

MR. PAXSON: The word "to" should be in there.

BY MR. McALLISTER:

Q. The answer was "It is not." The next question was

"Q. Why not?"

and the answer which followed was this:

"A. The only power that can enter the Staten Island Edison Company's system through the interconnection would be governed by the adjustment of the governors on the steam turbines in the Livingston Generating Station of the Staten Island Edison Corporation."

Is it not a fact, Mr. Sibley, there are only two ways to prevent flow of power over the interconnection between Public Service Electric and Gas Company and Staten Island Edison Corporation, the first would be to open the switch at either end of the interconnection or to so adjust the generators on Staten Island Edison Corporation that there would at all times be a flow of energy from Staten Island to Public Service Electric and Gas Company?

A. One other exception, with the steam energy admitted to the turbine just equalling the electrical energy taken from the system. In that case there would be a balance and there would be no flow.

Q. But I think it has been testified here by various engineers, including Mr. Lytle, that it is impossible to maintain such a balance over any period of time. Isn't that true?

A. Yes, that is true.

Q. So that if you were to so adjust the operations between Mechanic Street and Staten Island Edison Corporation so that there would be no opportunity for the

flow from Mechanic Street to Staten Island Edison Corporation at any time whatsoever, the only means by which that could be accomplished would be one of the two means that I indicated in my first question. That is, so adjust the governors on the generating units at Livingston Station of the Staten Island Edison Corporation so that at any and all times there would be a flow of energy from Staten Island Edison Corporation to Mechanic Street Substation, or to open the switch at either end of the interconnection between Atlantic Street Station or the Mechanic Street Substation.

A. By stationing this indicating watt meter that shows the flow of power over the interconnection between Mechanic Street and Staten Island Edison Corporation at the turbine, the turbine operator could keep this flow of power very close to zero.

MR. McALLISTER: Will you read the question? Strike that.

BY MR. McALLISTER:

Q. I would like to have the question answered as it was put. If you recall it, will you kindly answer it. If you don't recall it, I will ask the reporter to read it.

A. Well, he had better read it.

EXAMINER SPENCER: Read the question.

(The reporter thereupon read the pending question as recorded.)

THE WITNESS: That condition would eliminate the slopover.

BY MR. McALLISTER:

Q. Is there any other means by which that can be accomplished other than the two which I have indicated?

A. I don't know, but that is the usual means.

Q. You can't think of any other way in which it can be accomplished, can you?

A. No, sir.

Q. Does the operator at the Livingston plant have any instrument which tells him what the flow of energy is between Atlantic Street Substation and Mechanic Street Substation?

A. No, sir.

Q. How does he operate then, in the adjustment of the generators in this manual control designed to even out, so to speak, the flow of energy in both directions over the interconnection?

A. There is an indicating watt meter in the load dispatcher's office. The load dispatcher's duty is to regulate the flow of electrical energy in the interconnection between Public Service Electric and Gas Company and Staten Island Edison Company. He makes his wishes known to the generating station by telephone.

Q. Have you finished your answer?

A. Yes, I am through.

Q. He has other duties, I presume, aside from watching that one meter?

A. He does.

Q. Is that a considerable part of his duties?

A. Well, of course, the first duty of a load dispatcher, the most important duty of the load dispatcher is to see that the customers are supplied with electrical energy.

Q. And this other matter is of secondary importance?

A. It is certainly secondary to seeing that all these consumers are adequately supplied.

Q. And as a matter of fact the operations between Staten Island Edison Corporation and Public Service Electric and Gas Company, according to the records which you have examined clearly indicate that no such effort is made by the operator to keep that needle on zero at any and all times, isn't that true?

A. Well, I think it would be impossible to keep the needle on zero at any and all times. You can keep it as near as you reasonably can, but I can't testify as to the alertness of the load dispatcher or the efficiency of the telephone communications.

Q. But even for a considerable period of time, the records which you have examined show the continuing, uninterrupted flow in one direction or the other over the interconnection between Staten Island Edison Corporation and Public Service Electric and Gas Company?

A. There are times there when it stays in one direction longer than I think it should stay there.

Q. For instance, how long?

A. Well, charts that I saw might read, say, for two hours. Here is a chart, here on this Exhibit No. 8, well it shows, practically speaking, on this particular chart, 20 minutes in one case and over here from 5, 10, 15 or 25, 25 minutes in another case.

Q. Beginning at 12:30 on that chart you have almost uninterrupted flow from Public Service Electric and Gas Company to Staten Island Edison Company up to some time after 2:00 a. m. There are slight lines above showing that there was an interruption of the flow in that direction, but that chart clearly shows that during that period the predominant flow was from Public Service Electric and Gas Company to Staten Island Edison Corporation, isn't that true?

A. That is true.

Q. And furthermore we know from the records that 3,000,000 kilowatt-hours a year flow over that interconnection from Public Service Electric and Gas Company to Staten Island Edison Corporation, that is true, isn't it?

A. That is true.

Q. So all this question of how you are going to stop it or whether you can stop that flow is meaningless when

you look at the record in this case, because it does exist, isn't that true?

A. Sure it exists.

Q. And the flow is there every day.

MR. PAXSON: What was that answer, I didn't hear it?

MR. McALLISTER: He says sure it exists.

BY MR. McALLISTER:

Q. And the flow is there every day?

A. Right.

Q. And the only exception to that is when there is cable trouble or something like that just as other lines in the system may be out for a period, and this cable is no exception. But, aside from that, this is an interconnection that is maintained for practical use and all of the incidents that attach to an interconnection of this kind in practical use can be found in the operation of this interconnection, isn't that true?

A. And all the incidents of what?

MR. McALLISTER: Read it.

(The reporter thereupon read the pending question as recorded.)

THE WITNESS: Well, I don't exactly understand that question.

BY MR. McALLISTER:

Q. The interconnection is there for practical use, is it not?

A. That is correct.

Q. And in the operation of that interconnection so that that practical use may be attained, the operators of Public Service Electric and Gas Company as well as the operators of Staten Island Edison Corporation realize that

a flow of energy that is incident to that kind of a connection will occur?

A. Oh, there is bound to be a slop-over. It can't be maintained exactly at zero.

Q. And when the officials of these two companies undertook to agree among themselves to establish this interconnection they knew then what was going to happen?

MR. PAXSON: Just a moment. I don't think that this witness knows what was in the minds of the officials of the two companies. He doesn't represent either of them.

EXAMINER SPENCER: I think you can ask what would be the result of the establishment of the interconnection.

MR. McALLISTER: Strike the question. I am not even trying to argue for it. I will rephrase it.

EXAMINER SPENCER: Proceed.

BY MR. McALLISTER:

Q. If you, Mr. Sibley, as an official of an operating company, decided to establish an interconnection with another operating system, you would realize and know at the time you made that interconnection that certain inevitable incidents of operation, including the flow of energy back and forth between the two systems would be the inevitable result of the operation of that interconnection with the switches closed at all times?

A. That is very true.

Q. And that is what occurs here?

A. Yes. That uncontrollable energy is bound to flow in a connection between two companies. You can't stop that.

Q. The control of the operator over this flow of energy between systems is an act on his part after the en-

ergy begins to flow in one direction or the other, isn't that true?

A. The chief operator sees it at the instant that it occurs. The adjustment on the governor is made of course subsequent to that time.

Q. Even if he does nothing but watch the needle there is an elapsed period of time before the adjustment can be made?

A. That is a true statement.

Q. And during that time there is a flow of energy in whichever direction it happens to be going?

A. That is correct.

Q. The interconnection maintained between Public Service Electric and Gas Company and Jersey Central Power & Light Company at South Amboy and Mechanic Street operates under substantially the same conditions as that which you have indicated prevail on the interconnection between Mechanic Street Substation and the Staten Island Edison Corporation?

A. I woould say in general that is true for every interconnection.

Q. Is it true that from Jersey Central Power & Light Company the predominate flow is to Mechanic Street Substation?

A. Yes, sir.

Q. And there is that variation, in that some 55,000,000 kilowatt-hours of energy are delivered by Jersey Central to Public Service Electric and Gas Company, and only 316,000 or some quantity of energy similar to that amount flows in the opposite direction. That creates a condition that is somewhat different, but at times of balance we have the same approximate conditions that prevail on the other interconnection to Atlantic Street, isn't that true?

A. All interconnections are about the same in that respect.

Q. There can be no question but that Jersey Central delivers this 55,000,000 kilowatt-hours of electric energy to Public Service Electric and Gas Company at Mechanic Street Substation?

A. No. That is delivered there.

MR. PAXSON: Just a moment, Mr. Examiner. You are asking him for a legal conclusion as to what constitutes delivery, are you not? That is a question of contract.

MR. McALLISTER: No, that is a question of fact.

MR. PAXSON: I object to the use of the word delivered. If you ask if it is received there, I have no objection. It gets there.

MR. McALLISTER: It gets there, yes.

EXAMINER SPENCER: You make a formal objection for the record?

MR. PAXSON: Yes.

EXAMINER SPENCER: Objection overruled. Let the record show counsel for respondent objects to the use of the word deliver in that question, and the objection is overruled and exception noted.

Proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. In the operation of two systems that are interconnected does energy flow according to the will of the operators?

A. It can flow according to the will of the operators, or it can flow by the action of the operator in accordance to his will.

Q. By that you mean by opening and closing various circuits you can direct that?

A. That is right.

Q. But if at a certain point there is a supply of electrical energy with various leads going out from that common point or bus, is there any way you can control the flow of that energy from that source?

A. No. If the source is maintained at standard voltage and frequency, the amount of power flowing from that source is dependent upon the amount required to operate motors, lights and so on.

Q. And under those circumstances the energy flowing from that source or bus will follow the line of least resistance?

A. Well, that would be true if there were multiple circuits. I imagine you mean least resistance to flow of electrical energy?

Q. That is true, generally referred to as impedance. That would be the correct term to use, would it not?

A. It would be representative.

Q. What other terms would you use to more adequately describe that resistance to the flow of electrical energy?

A. The flow of electrical energy between two common points divides in the two circuits, not necessarily proportionate to the impedance, as the impedance may change—the difference in the impedance would change the reactive KVA in these circuits. Electrical energy, or the flow of power in parallel circuits varies with different conditions, and may be nearer inversely proportional to the resistance of the two circuits.

Q. Are you referring to impedance there when you use the term resistance?

A. No.

Q. Can you state that answer in other language so that the ordinary layman or lawyer can understand it?

A. Well, that is one of the problems that might better be decided between the engineers, I guess.

Q. Might be. But can you state it in language the ordinary man can understand?

A. The electrical constants of these circuits change conditions. I have no objection to your assuming that the power would flow inversely proportional to the impedances. I don't think that is strictly true. I know it isn't true in all cases but I have no objection to that assumption.

Q. Generally speaking that is the manner in which practical operating men refer to this question of flow and consider the problem in determining the path by which energy will travel between two points?

A. I think there is a little confusion here. The impedances would determine the quantity or proportion of the amperes, but not necessarily of the energy, which is the kilowatts.

Q. But the kilowatts would flow according to the path you have indicated in the inverse proportion to the relation of the impedances in the circuits, isn't that true?

A. Well, of course amperes is not a sole function of energy. You must enter into that equation, the angle of lag and lead.

Q. That is true, but nevertheless, the consideration of the practical problem whether or not energy from a common point will flow out over available circuits does not require this complicated computation that you have referred to for that solution of that problem, does it?

A. Well, we will so consider it. As far as the direction of the flow is given in one of your exhibits, I have no quarrel about the computation of the Commission's engineers in it.

Q. What I have particular reference to, Mr. Sibley, is just this fact. Your exhibit which you have here, Exhibit 8, is it?

A. I believe that is correct.

Q. That shows a considerable flow of energy from Jersey Central Power & Light Company to Public Service

Electric and Gas Company at Mechanic Street Substation and simultaneously there is a flow from Public Service Electric and Gas Company to Staten Island Edison Corporation for a period from about 12:30 to 2:00 a. m., I mean 12:30, just past midnight until about 2:00 a. m. in the morning.

Now is there any way in which you can prevent the flow of energy that finds its way on the bus at Mechanic Street Substation from supplying in whole or in part the load going to Staten Island Edison Corporation as indicated on your chart?

A. Is there any what?

Q. Is there any way that you can prevent the energy coming from Jersey Central Power & Light Company and on to the bus at Mechanic Street Substation from following the path over the interconnection to Atlantic Street Substation of Staten Island Edison Corporation?

A. Well, as previously stated the power flowing from Public Service Electric and Gas Company to Staten Island Edison Company depends upon the condition of the steam turbines in the Livingston Power Station of the Staten Island Edison Company.

MR. McALLISTER: Will you read that answer for me, please?

(Whereupon the reporter read the preceding answer as recorded.)

BY MR. McALLISTER:

Q. Explain that answer, will you please, Mr. Sibley? The chart shows there is actually a movement from Public Service Electric and Gas Company to Staten Island Edison Corporation at that time. I think you will admit that that flows from Mechanic Street Substation. Isn't that true, Mr. Sibley?

A. That is true.

Q. Now how will your control of the turbines under that condition have anything to do with that flow of energy when it is actually existing and continues for a period of approximately two hours?

A. Well that energy flowed because there was not steam enough behind the turbines in the Staten Island Edison Power Station.

Q. That is true. We have gotten by that point. It is actually a fact the energy went over there from Mechanic Street Substation. That is shown by the chart.

A. That is correct.

Q. I am saying from the available supply on the bus at Mechanic Street Substation is there any way you can prevent the energy that is on that bus from Jersey Central Power & Light Company following the path to the connection of the Atlantic Substation of the Staten Island Edison Corporation?

A. Well, I don't know where that energy was actually generated that went through that interconnection between the Public Service Electric and Gas Company and Staten Island Edison Corporation.

Q. Will you answer the question, please? If you don't recall it I will have the reporter read it.

A. I believe the question was could anything be done to prevent this Jersey Central energy from going over to the Staten Island Edison Company. Is that the question?

Q. That is the question. At that time under the conditions shown in your chart between the hours that I indicated?

A. No, I don't know that anything could be done and I don't know anything was done.

Q. As a matter of fact it is not an unusual phenomena in the operation of electrical properties to have a source of power at one time originate at one station and at another time at some other station?

A. That is the usual method.

Q. That is the usual method?

A. Yes, sir.

Q. There is no reason for failing to recognize the fact that is recognized every day in the industry, is there, that when you have energy available on a bus and there are lead lines going out from that bus, that there is no way of preventing the energy on the bus from following those leads?

A. I believe I testified that was true.

Q. I think so, and it is a recognized fact, is it not? I mean it is not a matter that has been a question in your general, every-day operations.

It is not such a delicate question you need to enter into any great discussion or investigation, if you know the source of energy on a particular bus originated at a particular point or that that energy was available on that bus, there is no particular question in your mind in every-day operation as to the fact that a part of that energy may very readily flow out of that connection from that substation.

A. All of that is probably true.

Q. It is recognized, isn't it, you don't go into a long detailed determination when that first fact is known and established?

A. I said that was probably true.

Q. I believe you stated, Mr. Sibley, that when you examined the properties that were involved in this interconnection between South Amboy and Mechanic Street, you stated it was 7/8 of a mile from the generating plant at South Amboy, that is the Jersey Central generating station at South Amboy to the south bank of the Raritan River, but I was unable to find in the record the distance from there to Mechanic Street Substation. What is the length of those cables? I would like to get the continuing distance. You gave 7/8 of a mile to a point on the south

bank of the Raritan River. If you continue that into Mechanic Street what must be added to the 7/8 of a mile?

A. The submarine cable and land cable.

Q. Can you give that to me?

A. No, sir.

Q. I have a recollection somewhere of having heard someone say it was 93/100 of a mile from the plant in South Amboy to Mechanic Street. Now 7/8 of a mile would be 87-1/2/100 and so that would leave 5-1/2/100 of a mile for the balance, is that right?

A. Oh, no, those cables cross Raritan River, Raritan Bay.

Q. How much is that?

A. Well, I don't know the length of this cable. Any testimony I could give along that line would just be purely a guess.

Q. That is all right. I just thought, having made a study there that you would probably have that information.

A. No.

Q. There has been some testimony, Mr. Sibley, that the bus at Mechanic Street Substation is sectionalized and that by opening certain switches the bus may be operated in parts. I believe you stated that you had made a study of the operation of that substation. Is that true?

A. Well, I made an investigation of how certain readings were obtained from certain instruments. I am not familiar with the operation of the switches or the sectionalizing of the bus.

Q. Do you know whether or not they normally operate with switches on that bus closed so that it operates as a single unit?

A. I don't know how they operate that bus.

Q. Did you ever see it in operation at a time when the switches were open?

A. No. I was only there twice.

Q. Then the fact that the bus is sectionalized means nothing unless those switches are actually open so far as practical operation is concerned?

A. That is correct. The only thing I can base any opinion on would be the fact that the bus disconnecting switches, one set of bus disconnecting switches had been changed from the airbreak type to an oil type, I believe, in the last year or two.

Q. That doesn't change the operation of the bus as a unit?

A. No, that is true, it doesn't, but an oil switch is an expensive thing to install, and if there was no occasion to sectionalize the bus, I believe the disconnecting switches would have been left intact.

Q. And it was an additional safeguard, was it, that that was put in there?

A. Well, an oil-breaker permits the safe opening up of an electrical circuit under load which could not be safely accomplished through airbreak switches. In other words the installation of that oil switch would permit of opening safely that bus at any time it was the desire of the load dispatcher or the operator to so do it.

Q. Such an occasion would ordinarily arise in an emergency, let us say, isn't that true?

A. Why, I don't know why that oil-breaker was installed in that bus.

Q. Is the fact that switch is in there any indication that the bus is ever operated as parts?

A. Well, it is an indication in my mind that it may be desirable under certain conditions to operate it in parts or otherwise it never would have been installed.

Q. Did you find any records indicating such operation?

A. I found no such records.

Q. Did anybody tell you it was ever operated that way?

A. I didn't ask them.

Q. You weren't so much concerned then if you didn't pursue the investigation that would have given you the answer?

A. Well, when I went to that station I went there to inspect these readings and instruments from which they were obtained and to get a general knowledge of the station. I didn't pry into the operation of the station.

Q. Would you say the incidental mention of the fact that bus was sectionalized is a part of the description of the facilities, the same as a description of any other part of the facilities?

A. That oil-breaker in that bus shows it is possible to open it. Whether it was or was not open, I have no first hand information.

Q. On page 667 of the record, Mr. Sibley, in answer to various questions, the following appears where you were relating the circuits attached to the bus connected with general transmission circuits of Public Service Electric and Gas Company out from Mechanic Street. This question was put:

"Q. In what direction does the energy on those circuits flow?

"A. That is a matter of time and conditions and circumstances. It flows both ways over all those circuits.

"Q. In other words, electric energy will come in on those circuits to the bus bar and at other times electric energy goes away from those bus bars on those circuits?

"A. That is true.

"Q. Would you say that condition prevails every day, that is, flowing in each direction?

"A. I believe that is true.

"Q. Have you been in the substation when you have seen that occur?

"A. Yes, sir."

Will you state what you observed when you determined the direction of the flow?

A. Well, on October 1, 1938, at 4:07 p. m., I noticed that the indicating watt meter on the circuit running between Mechanic Street Substation and the Staten Island Edison Corporation—

MR. McALLISTER: (interposing) Now, Mr. Examiner,—

THE WITNESS: (interposing) Just one minute.

MR. McALLISTER: I have related my question to four circuits.

MR. PAXSON: You haven't let him answer the question.

EXAMINER SPENCER: Let him answer.

BY MR. McALLISTER:

Q. All right, go ahead. I related my question to four circuits and not the other circuits that may come out of that substation.

BY EXAMINER SPENCER:

Q. All circuits you are testifying about are the same he has asked about?

A. As I understood the question you asked me how I knew power flowed in both directions over the lines between Mechanic Street—

MR. McALLISTER: (interposing) Let the reporter read the question.

(The reporter thereupon read the question referred to as follows:)

"Q. On page 667 of the record, Mr. Sibley, in answer to various questions, the following appears where you were relating the circuits attached to the bus connected with general transmission circuits of Public Service Electric and Gas Company out from Mechanic Street. This question was put:

"'Q. In what direction does the energy on those circuits flow?

"'A. That is a matter of time and conditions and circumstances. It flows both ways over all of those circuits.

"'Q. In other words, electric energy will come in on those circuits to the bus bar and at other times electric energy goes away from those bus bars on those circuits?

"'A. That is true.

"'Q. Would you say that condition prevails every day, that is, flowing in each direction?

"'A. Have you been in the substation when you have seen that occur?

"'A. Yes, sir.'

"Will you state what you observed when you determined the direction of the flow?"

MR. McALLISTER: I think that the witness, reading all the time that I did, it would give him a clear indication of what I was talking about, but since it appears there may be some question about that I am going back one further question and put in one further answer. It says:

"Q. How many circuits attached to that bus are connected with general transmission circuits of the Public Service Electric and Gas Company, if any?

"A. There are four set circuits,—it should be such—"There are four such circuits, two running di-

rectly to Metuchen and one running to Metuchen by way of Keasby, and another by way of Carteret."

In putting my question I left out the answer, merely repeating the question.

BY MR. McALLISTER:

Q. Now those are the four circuits I am referring to and it is obvious your answer—.

BY MR. McALLISTER:

Q. What is your answer?

A. That is correct. There are no instruments on those four circuits which would tell which way the power was flowing out. It has to be approximated the best you can do it from what other things there are in the station. It was that that I was trying to describe to you when you interrupted me about the condition. You asked me was there a time I had seen it. I was trying to tell you that there was a case or two when I actually believed power was flowing one way and power was flowing the other way. I believe it flows in both directions in those circuits under different conditions and circumstances.

Q. Under those circumstances you may go ahead and answer the question. But I just wanted to hold you to the question instead of going off on a tangent and then being forced to come back to this.

A. Did you want me to give an instance where I observed power flowing one way and then in the other way and how I determined that?

Q. What I was concerned with particularly was the form of the question. The questions was:

"You have been in the substation when you have seen that occur?" and your answer was "Yes, sir".

I thought there was something happening in the station that you could take a glance at and see what was going on, that it was going in this direction and then in the reverse direction.

A. I did not mean to put it in that way, that there were instruments that you could observe.

Q. Even though I had that idea in mind and you determined it in some other manner, I would like to know how you did determine which way it flowed and what occurred actually as a support for what you said here in the record. I imagine this answer was based upon what you are now going to tell me you did see and what processes you went through to arrive at this conclusion. And then, of course, this would be your conclusion and opinion rather than something you had actually seen as an actual fact, wouldn't it? It is a deduction drawn from certain other things?

A. It is a deduction drawn from certain indications.

Q. Rather than an obvious fact that was there and observed without question?

A. Yes.

Q. If you will go ahead with your answer, I would like to have it.

A. On October 1, 1938 at 4:07 p. m., at a time when I was in the Perth Amboy substation known as Mechanic Street substation, the interchange of power between Mechanic Street and Jersey Central Power and Light Company was shown on the indicating watt meter to be zero. At the same time the indicating watt meter on the circuit running between Mechanic Street and Staten Island Edison Corporation indicated 1500 kilowatts to Staten Island Edison Corporation.

Regardless of what other load there was on the Mechanic Street bus, it was apparent that that electrical energy flowed from Metuchen to Mechanic Street.

On a previous occasion, which I believe was September 12, 1938, the power flowing from the Jersey Central Power and Light Company circuit toward Mechanic Street exceeded what I estimated to be the Mechanic Street local

load and that power flowing from Mechanic Street toward Staten Island.

Under these conditions it was apparent to me that power from the generators on the Jersey Central system was actually flowing from Mechanic Street to Metuchen.

Q. And simultaneously the flow from Mechanic Street substation to Staten Island Edison Corporation would come from the same source as the flow from Mechanic Street to Metuchen?

A. I think probably that is right.

Q. It could not be otherwise, could it? With energy flowing out from Mechanic Street to Metuchen over all available circuits and simultaneously it flowed to Staten Island Edison Corporation from Mechanic Street, you could not reach any other conclusion than that the energy which was on the bus at Mechanic Street which came from Jersey Central was the energy which flowed to Staten Island?

MR. WESTON: Pardon me, but the witness has not stated there was any energy flowing to Staten Island at that time.

MR. McALLISTER: Will you let him answer his own questions?

MR. PAXSON: He has a right to make objections, Mr. McAllister. We have a perfect right, it seems to me, at any hearing before the Federal Power Commission to offer objections to questions before they are answered.

EXAMINER SPENCER: You have a right to object.

What was the question? Did the witness answer the question?

MR. McALLISTER: He has answered the prior question.

EXAMINER SPENCER: What was the prior question?

MR. McALLISTER: Will you read the previous question, which he answered, and his answer?

(The following was then read by the Reporter:)

"Q. And simultaneously the flow from Mechanic Street substation to Staten Island Edison Corporation would come from the same source as the flow from Mechanic Street to Metuchen?

"A. I think probably that is right."

EXAMINER SPENCER: He did testify that energy flowed from Mechanic Street to Staten Island.

MR. WESTON: Regarding that given instant he was observing on September 12, 1938, I do not believe he did testify any energy was flowing in the Staten Island-Mechanic Street interconnection at all. He said energy was flowing back from Metuchen at that time.

MR. McALLISTER: Let us have the answer on the record, Mr. Examiner. Let's see what the witness did say.

EXAMINER SPENCER: Which question is that?

MR. McALLISTER: Let the record speak for itself.

EXAMINER SPENCER: Will you read the answer of the witness to the previous question, and also the question, that is, the one previous to the one you read?

(The following was then read by the Reporter:)

"Q. If you will go ahead with your answer, I would like to have it.

"A. On October 1, 1938 at 4:07 p. m. at a time when I was in the Perth Amboy substation known as

Mechanic Street substation, the interchange of power between Mechanic Street and Jersey Central Power and Light Company was shown on the indicating watt meter to be zero. At the same time the indicating watt meter on the circuit running between Mechanic Street and Staten Island Edison Corporation indicated 1500 kilowatts to Staten Island Edison Corporation."

MR. McALLISTER: It is very clear as to what he said, Mr. Examiner.

MR. WESTON: I withdraw the objection.

EXAMINER SPENCER: The objection is withdrawn.

MR. McALLISTER: Now, Mr. Reporter, will you read the last question?

(The following was then read by the Reporter:)

"Q. It could not be otherwise, could it? With energy flowing out from Mechanic Street to Metuchen over all available circuits and simultaneously it flowed to Staten Island Edison Corporation from Mechanic Street, you could not reach any other conclusion than that the energy which was on the bus at Mechanic Street which came from Jersey Central was the energy which flowed to Staten Island?"

THE WITNESS: At this particular time in this case it is probable that the energy did flow to Staten Island. We know it flowed to Staten Island from the Mechanic Street bus.

BY MR. McALLISTER:

Q. You mean to Staten Island from Mechanic Street bus?

A. Yes; to Staten Island from Mechanic Street bus. And if the sum of the Staten Island indicating kilowatts and the assumed value of the kilowatts of the local load

was less than the power supplied from Jersey Central Power and Light Company to Mechanic Street, the energy from Mechanic Street to Staten Island at that particular time may have come from generators on the Jersey Central Power and Light Company.

MR. McALLISTER: Will the Reporter read the answer of the witness, please? And, Mr. Sibley, will you please follow it?

I don't think all of the sequence that should be in it has been stated in line with the prior question. But will the Reporter read the answer, and will the witness follow it to see if he has that question answered?

(The last answer of the witness was then read by the Reporter.)

BY MR. McALLISTER:

Q. You are unwilling to go any further than to say "may have come" from that source?

A. The tools which we have to make these measurements with are not as good as they should be. Under such circumstances I do not want to make positive statements.

Q. But on the assumption which you made the conclusion which I stated must obviously follow? Isn't that true?

A. Well, if there were no other source to this Mechanic Street bus, then what you say is probably true.

Q. It is true, isn't it?

MR. WESTON: I object to the question because it is purely hypothetical. It assumes that is for a local load, which has never been shown one way or the other.

EXAMINER SPENCER: It is an assumption made by the witness.

The objection is overruled. You may proceed. An exception is noted.

THE WITNESS: It may have.

BY MR. McALLISTER:

Q. It would, would it not? If you have only one source of energy attached to a circuit on a bus—I mean only one source of energy on a bus to which is attached a circuit, it is obvious that energy flowing over that circuit from that bus must be energy from the source which supplies the bus?

A. That is true.

Q. You can't get away from that conclusion, can you?

EXAMINER SPENCER: He answered that is true.

MR. McALLISTER: I followed it up with another question.

EXAMINER SPENCER: All right, Mr. McAllister.

BY MR. McALLISTER:

Q. You can't get away from that conclusion, can you?

A. I believe that is generally true.

Q. Can you reach any other conclusion?

A. None that I can think of at this time.

EXAMINER SPENCER: Gentlemen, at this time we will take a ten minute recess.

(Thereupon a short recess was taken, after which the following occurred.)

EXAMINER SPENCER: Gentlemen, the hearing will be resumed.

BY MR. McALLISTER:

Q. Mr. Sibley, on page 688 of the record in answer to a question I asked you made an answer. The question was:

"Q. Mr. Sibley, can you trace or earmark a kilowatt? You are a professional engineer. Can you trace or earmark a kilowatt? Mr. Grimsley thought that was a crude question when I put it to him. Perhaps you will think the same thing about it. I will put the same question to you that I put to Mr. Grimsley."

Your answer was:

"A. I will answer the question in the same way that Mr. Grimsley did. If you have a direct circuit to a given point you can pretty well identify the kilowatts to the point where another circuit met it. But where you have two lines converging at one point the identity of the electric power and energy is lost."

Is it not a fact, Mr. Sibley, that under such conditions the relative proportions and the amounts delivered from each source in the common branch or circuits can be clearly established?

A. Will you state this problem again for me, please?

Q. Is it not a fact that under such circumstances as you described—

A. Just what circumstances?

Q. If you have a direct circuit to a given point you can pretty well identify the kilowatts to the point where another circuit met.

A. They can be identified that far, of course.

Q. Up to the point where they meet the circuits that far carry the energy that originates at both sources?

A. That is right.

Q. Now, they meet and join and another circuit continues on which carries the combined energy from the two sources?

A. Yes.

Q. Now, is it not a fact, that under such circumstances the relative proportions and amounts delivered from each

source as it is flowing in the common circuit can be clearly established?

A. I would say in general that is true.

Q. A further question beginning on page 668 is as follows:

"Q. Do you know what the interconnection between Staten Island Edison Corporation and Public Service Electric and Gas Company is used for?"

Your answer was:

"A. It is used to supply emergency power in both directions and economy power in both directions."

That connection is also used for the carrying of the incidental flow which is a necessary incident of the operation of the interconnection?

A. Is that a question?

Q. Yes.

A. The incidental flow, surely, flows over the same wire with the economy power and the emergency power.

Q. Mr. Sibley, will you please refer to your exhibit No. 6, which is identified in the record as Respondent's Exhibit No. 6?

A. Yes; I have it.

Q. Why is this chart constructed on such a small scale?

A. Well, there is no special reason. It could as well as not have been constructed on any scale.

Q. Can you read it?

A. Yes.

Q. Will you state for the year 1937 the quantity of energy received by Staten Island Edison Corporation from Public Service Electric and Gas Company as shown on the chart day by day in July 1937? Will you state those figures which represent the daily total kilowatt hours moving from Public Service Electric and Gas Company to Staten Island Edison Corporation?

MR. WESTON: Mr. Examiner, there is no real reason why every day in the year is to be shown. Let him pick out instances. There is no purpose in asking day by day. It would just prolong the hearing.

MR. McALLISTER: I am asking for one month only, 31 days.

MR. WESTON: Just one month?

MR. McALLISTER: Yes.

EXAMINER SPENCER: Will the witness answer the question, please?

THE WITNESS: And the month is July?

BY MR. McALLISTER:

Q. July, 1937. State the date—1st, 2nd and 3rd, and give the reading. That is the graph above the dark line marked zero.

A. On July 1, 1937 the upper line on the graph known as Respondent's Exhibit No. 6, indicating the 24 hour integration flowing from Public Service Electric and Gas Company to Staten Island Edison Corporation is read from the chart as follows:

8,000, 9,000, 9,000, 8,000, 8,000, 8,000, 11,000, 9,000, 12,000, 8,000, 8,000, 11,000, 9,000, 12,000, 8,000, 11,000, 12,000, 14,000, 7,000, 8,000, 11,000, 9,000, 6,000, 8,000, 8,000, 8,000, 10,000, 8,000, 5,000, 7,000, 14,000, 9,000, 8,000, 8,000, 7,000 and 8,000.

Now, Mr. Sibley, will you please read the same figures under the line for the same period representing the flow of energy from Staten Island Edison Corporation to Public Service Electric and Gas Company?

A. 9,000, 8,000, 8,000, 8,000, 8,000, 8,000, 7,000, 8,000, 9,000, 9,000, 6,000, 5,000, 6,000, 11,000, 12,000, 7,000, 10,000, 10,000, 11,000, 8,000, 9,000, 10,000, 8,000, 6,000, 12,000, 11,000, 9,000, 11,000 and 7,000.

Q. And you prepared this chart?

A. Yes, sir. I read the figures from the log sheets and one of our men put them on the paper.

Q. I show you Commission's Exhibit No. 19 and ask you if that exhibit shows the same information which you have attempted to set forth in graphic form on that chart which is Respondent's Exhibit No. 6 at least for the months and years shown on the exhibit. That one is limited to a shorter period than your chart, but for the period shown it is the same information that is presumed to be recorded of your chart, is it not?

A. It looks like it to me.

Q. It was identified by Mr. Bass as representing a true and complete record of the energy movement between the two companies over this interconnection. Have you any reason to question its correctness?

A. No, sir.

Q. I just assumed that it might be that you had taken yours from another source, when you were examining it as closely as you did. I may be entirely wrong.

A. As a matter of fact, I took it from another source. I took it from the records of the Staten Island load dispatcher there at Staten Island. But I assume that they are the same figures.

Q. There is no reason for them to vary?

A. Not that I know of.

Q. If you consider information of this character in tabular form there can be no question as to just what is shown? In other words, for a particular day if it is shown on here as 12,000, you can read that accurately and no two people will have different opinions as to what the movement of energy actually is?

A. That is right.

Q. When you attempt to read a chart on a scale as small as you have prepared or a scale as small as used in the preparation of exhibit No. 6 to which you were refer-

ring, Mr. Sibley, and inaccuracies result from an attempt to read that chart, it is obvious, is it not, that the tabular statement is more dependable?

A. Oh, I think so, because these were plotted from the tabular. This was prepared to graphically represent it. There is no difference between that tabular statement and this except in the way of their presentation.

Q. Except that this can be read correctly at any time and at all times, and that cannot be, Mr. Sibley, as to what the flow is on any particular day?

A. Well, I don't know how well I did it.

Q. You did pretty well, but it came a long ways from being accurate. The record will show that.

MR. PAXSON: You are not testifying, are you?

MR. McALLISTER: No; I am not. The record will show that. That is what I am referring to.

EXAMINER SPENCER: You may proceed.

BY MR. McALLISTER:

Q. And on the tabular form which is Commission's Exhibit 19, which shows the flow of energy stated in kilowatt hours from Public Service Electric and Gas Company to Staten Island Edison Corporation and from Staten Island to Public Service for each day that tabular statement will indicate more clearly whether there has been a balancing every day than your chart which is Exhibit No. 6?

A. To me a graph appeals more than figures do. It is true that this was plotted from the figures, and it is true that there might be a slight error in the plotting of these things; but the general problem that we wanted to portray here was to show that the ebb and flow of this incidental power practically balanced, not only each day but each month, so you can see those things with your eye.

Q. Why have you designed the chart with a median line which you marked zero?

A. Why did I what?

Q. Why did you design the graph with a median line which you marked zero?

A. I wanted to show the variation above this line which represented all of the power flowing from Public Service Electric and Gas Company to Staten Island Edison Corporation, and the line below showing the amount of power flowing from Staten Island Edison Corporation to Public Service Electric and Gas Company.

Q. Was there any thought in your mind of simulating the graph, which is exhibit 8, which shows the flow in one direction above the median line marked zero and the line below the line, the flow in the opposite direction?

A. These two charts are not really comparable. This chart marked Respondent's Exhibit No. 6 shows kilowatt hours integrated over a complete day, from midnight to midnight, while the graph on the chart shown as exhibit No. 8 indicates the flow of power at any and all times within the limits.

Q. What do you mean when you refer to Exhibit 6 and say that it shows integrated flow?

A. Integrated flow is the summation of all electric energy flowing over a circuit in any period which you choose to take.

Q. In other words, what you have done was to take the flow in one direction during a 24-hour period and added that all together?

A. That is right.

Q. And you have taken the flow in the opposite direction over a 24-hour period and added that all together?

A. The watt meters automatically do that. That is correct.

Q. Then you plot a point on each side of the line, one to represent the flow in one direction and one to represent the flow in the other direction?

A. That is correct.

Q. And then, having plotted all of those points, you draw a continuous line. You don't mean to indicate by the chart that ~~there is~~ a continuous flow in each direction at any and all times?

A. Oh, no; no, sir.

Q. That would be the conclusion to be reached if you plotted a curve about a median line on a chart similar to exhibit No. 8?

A. I don't think so. I have attempted to make that clear in the title, that it was the energy flowing in both directions. As a matter of fact, this chart is not energy. This is instantaneous power to get electrical energy. You must consider some period. Electrical energy is the time integral of power.

Q. That is right. But on exhibit No. 8 you have both the quantity and the time. If you want it computed it can be computed from that chart.

A. That is right.

Q. It may be a tough job, but it can be done, can it not?

A. Yes.

Q. Because you have both elements to determine the energy that flowed?

A. That is correct.

Q. But on your chart, which is exhibit No. 6, you have two continuous lines on either side of a median line, neither of which is in any way related to the other.

A. That is not exactly true.

Q. Why isn't it true?

A. Because both of them represent daily kilowatt hours.

Q. The one represents the flow in one direction and the other represents the flow in the other direction.

A. The total quantity which has flowed in the 24 hours in each case.

Q. And there may have been a dozen intervals or interruptions in the flow in each direction during that 24-hour period?

A. Interruptions?

Q. That is right.

A. Yes. The power has flowed one way and then the other.

Q. You have assembled the parts and put them together, you might say, on an algebraic equation to determine which is above and which is below?

A. Yes.

Q. And then you plotted it this way; but it doesn't tell any kind of a story as to what has actually transpired day by day?

A. Oh, yes; it does. It does not show the instantaneous values. It does not show how great any one hour has been, but it does show the energy, that is, the total energy which has passed in each direction each day.

Q. I show you Exhibit No. 19 which in tabular form for the year 1937 and for three months of 1938 shows the daily movement of energy in both directions between Mechanic Street Substation and Atlantic Substation, and I will ask you if there is anything on your chart in that period which is not shown by the tabular statement.

MR. PAXSON: Just a moment, please. Exhibit No. 19, Mr. Examiner, was not put in by us. Mr. Sibley is not qualified to state whether the statements contained therein are true or not. He does not know its contents. He knows generally what it purports to show. But he has already stated that he took his figures from Staten Island logs; and I understand these figures were taken from Mechanic Street logs. They may be or they may not be identical.

EXAMINER SPENCER: Is the witness prepared to answer the question?

I will overrule the objection and let him answer the question.

MR. PAXSON: An exception, please.

EXAMINER SPENCER: Exception noted.

MR. PAXSON: May we hear the question again?

EXAMINER SPENCER: Will the Reporter read the question, please?

(The question was then read by the Reporter.)

BY MR. McALLISTER:

Q. What is your answer, Mr. Sibley?

A. Yes; we have attempted to show on Respondent's Exhibit No. 6 the days and amounts of power other than the mere incidental flow.

Q. And to what extent have you shown any of that during the period shown on Exhibit No. 19?

A. Exhibit 19 covers a period from the first day of January, 1937 up and to the 31st day of March, 1938, inclusive. The chart known as Respondent's Exhibit No. 6 has included these readings with the exception that there is no reading shown after March 14, 1938.

We have indicated on this chart that some emergency or economy flow power occurred on the last few days of April, 1937, which I believe has not been shown on Exhibit No. 19.

Have I answered your question?

Q. Yes. But aside from that little showing of economy flow which you just mentioned is there anything else shown on your chart for that period which is not shown on Commission's Exhibit No. 19?

A. I believe I have stated the only exception.

Q. Would you throw away the tabular statement and rely upon your graph if you were required to determine day by day what was the flow in actual kilowatt hours of energy between the two companies?

A. No.

Q. You would rather rely upon the tabular statement for accuracy in that regard?

A. It is much easier to read than it is from the graph.

Q. It is more accurate?

A. I would say that it is more accurate.

Q. Looking at Exhibit No. 19, Mr. Sibley, in referring to your chart on page 673 and 674 you gave an answer which is recorded at the bottom of page 673, and apparently I did not catch the import of your answer, and I interposed this question:

"Will you repeat that answer, please?", and you answered as follows:

"The greater portion of the chart is incidental power, and it was drawn to show that the incidental power balances out each day, each month and each year."

Now, Mr. Sibley, does your chart show that the quantity of electric energy flowing in both directions, measured in kilowatt hours during each 24-hour period does balance out?

A. It does not balance out exactly, and I don't remember stating it that way. I believe I had some modifying word in there. Just before that didn't I state it probably more accurately?

Q. I will read that, going back several questions on page 673:

"Q. You are speaking now about the incidental power?

"A. This chart represents all power transferred over this interconnection.

"Q. But the parts blocked in solid black represent the economy and emergency flow?

"A. They do.

"Q. So the flow as shown by the other two lines represents incidental?

"A. The greater portion of the chart is incidental power, and it was drawn to show that the incidental power balances out each day, each month and each year."

Now, Mr. Sibley, I cannot realize that I understood the answer, or I could not, and then I said:

"Will you repeat that answer please?" And you came back and said:

"The greater portion of the chart is incidental power, and it was drawn to show that the incidental power balanced out each day, each month and each year."

A. Mr. McAllister, if you will please read just ahead of where you started to read or where the question was first asked me, I believe I had it stated correctly.

Q. Here is the record, Mr. Sibley. Will you please point it out?

A. In this portion, on page 673 of Mr. McAllister's copy of the transcript of testimony, he has shown in red there the question which I believe I answered.

Quoting from the section outlined in red:

"This chart shows that day by day and month by month and year by year the amount of power transferred in one direction is practically equal to the amount of power transferred in the opposite direction."

And I am sorry that I did not use the word "practically" in the other two instances, because that is what I intended to do.

Q. What you intended to indicate by that is exactly what is shown on Exhibit 19 for the period that is covered by Exhibit 19?

A. Yes, sir. That is exactly what I intended to show.

EXAMINER SPENCER: Gentlemen, at this time we will recess until 2:00 o'clock.

(Whereupon, at 12:30 o'clock p. m., a recess was taken until 2:00 o'clock p. m.)

AFTER RECESS

(The hearing was resumed at 2:00 o'clock p. m., pursuant to recess.)

EXAMINER SPENCER: The hearing is resumed.

Whereupon

EDGAR DOW SIBLEY

the witness on the stand at the time of recess, resumed the stand and testified further as follows:

Cross Examination (Continued).

BY MR. McALLISTER:

Q. I presume, Mr. Sibley, that you are familiar with the contract between Jersey Central Power & Light Company and New Jersey Power & Light Company which bears date of February 5, 1937, and which was introduced in evidence by the respondent, I believe, as Exhibit No. 4?

A. I am not familiar with the details of that contract.

Q. Are you familiar with that provision of the contemplated arrangement by which an additional transmission line is projected or under consideration to connect the Jersey Central Power & Light Company and the New Jersey Power & Light System more intimately than they are now tied together?

MR. PAXSON: Just a moment. In the first place, Mr. Sibley hasn't testified about any contract. It is not proper cross-examination by any stretch of the imagination. Mr. Sibley is here as an expert witness and he has said he isn't familiar with the contract and I object to the question.

EXAMINER SPENCER: In response to the question whether he was familiar he said he was not in a general way.

MR. McALLISTER: I think if you will read the answer—

EXAMINER SPENCER: (Interposing) Your question is whether he is familiar with a particular part of the contract.

MR. PAXSON: The contract speaks for itself.

EXAMINER SPENCER: Let the witness answer that question as to whether he is familiar with a particular part of it.

THE WITNESS: I am not.

BY MR. McALLISTER:

Q. Do you know anything about that projected line between the property of the New Jersey Power & Light Company and the property of the Jersey Central Power & Light Company?

MR. PAXSON: Objected to on the ground that anything which is projected for the future or is prospective has absolutely no bearing on the determination of the issues before us as to the public utility status of Jersey Central Power & Light Company on March 14, 1938.

EXAMINER SPENCER: Mr. McAllister, what is your theory as to the competency of that testimony bearing on the question at issue?

MR. McALLISTER: Well, he has testified rather extensively as to the generation of Jersey Central Power & Light Company and the facilities of New Jersey Power & Light Company, the interconnections between the companies, the interconnection between the Jersey Central Power & Light Company and the Public Service Electric and Gas Company. He has come forward as a witness on behalf of the respondent. He has made various studies relating to this interchange, has expressed opinions as to the flow of energy between these interconnections, says they are based on studies. All of that relates to and is a background for the question that I have put to him, and that is a question of fact whether he is familiar with the various things I have designated. If he isn't, he can say so.

EXAMINER SPENCER: These lines you refer to are provided for in the contract?

MR. McALLISTER: Yes.

EXAMINER SPENCER: I will hear you, Mr. Paxson.

MR. PAXSON: I object on another ground, that Mr. Sibley doesn't represent either party to the contract. He doesn't work for either and he can't state what their future plans or intentions may be, or what is in their minds. Mr. Crumley has been very thoroughly interrogated on that side of the case and if there is any effort to impeach that testimony of Mr. Crumley, I don't know it. At any rate, Mr. Sibley isn't competent to do it as anything he may say is pure hearsay.

MR. McALLISTER: May I be heard?

EXAMINER SPENCER: Yes.

MR. McALLISTER: May I ask the witness before I make my statement as to what his connections are with these two companies?

EXAMINER SPENCER: Yes, you may proceed.

BY MR. McALLISTER:

Q. I believe you stated you were employed by Utility Management Corporation?

A. That is correct.

Q. What is the relation between Utility Management Corporation and New Jersey Power & Light Company?

A. New Jersey Power & Light Company, we do work for New Jersey Power & Light Company.

Q. Under contract?

A. I believe that is true.

Q. Doesn't that contract provide you are in fact managers of the operation of this property?

MR. PAXSON: Objected to. He has asked for a legal conclusion. If he wants to know, the contract speaks for itself. I don't think it so states, incidentally.

BY MR. McALLISTER:

Q. Do you have a copy of that contract, Mr. Sibley?

A. No, sir.

Q. Can you procure one?

A. I never saw it.

Q. You never saw it?

A. No.

Q. You know that a contract exists?

A. Well, only through hearsay. I understand there is some arrangement. My part of the work in our organization is the electrical engineering end of it.

Q. If that line is built will it not be designed under your supervision?

MR. PAXSON: Objected to.

EXAMINER SPENCER: Let me ask the witness this question.

MR. PAXSON: What will happen in the future he may not know.

BY EXAMINER SPENCER:

Q. Do you know anything about the lines of which he speaks?

A. No, sir.

EXAMINER SPENCER: All right.

MR. McALLISTER: I would like to have him answer that whether under the contract—

EXAMINER SPENCER: (Interposing) He says he doesn't know.

MR. McALLISTER: On the transmission line to connect the New Jersey Power & Light Company and the Jersey Central Power & Light Company would the design of that line come under his direct supervision.

MR. PAXSON: I have my objection as I have already stated, he can't tell whether he will get something in the future or not.

EXAMINER SPENCER: All right. Objection overruled. Can you answer the question?

THE WITNESS: When we are given work to do by these operating properties then we start to do our engineering on it. If such a line was to be built,—

BY EXAMINER SPENCER:

Q. (Interposing) Did you say if such a line was to be built?

A. Yes, if such a line was to be built I suppose I would have something to do with the engineering of it, the specifications of the line and so on.

BY MR. McALLISTER:

Q. That is really a part of your job, isn't it?

A. Yes, we build transmission lines, design and build them.

Q. I mean of one or more companies which, under your contract, which under the contract with Utility Management Corporation come within the provisions of that contract so far as engineering, accounting, management and so on are concerned, as I was saying, when a company with such a contract with Utility Management Corporation undertakes to construct an important transmission line, then it becomes your duty, and it is one of your functions as chief electrical engineer of Utility Management Corporation to approve or lay out the design to be followed in the construction of that important interconnection?

A. We usually give advice to the operating companies on new work, sometimes.

Q. Let me put it this other way. Isn't it a fact that you design in your own offices rather than in the offices of the operating company?

MR. PAXSON: Pardon me, are you talking generally?

MR. McALLISTER: The construction—

EXAMINER SPENCER: (Interposing) You are referring—

MR. PAXSON: (Interposing) I want to know.

MR. McALLISTER: I am asking if it isn't a fact under the contract,—

MR. PAXSON: (Interposing) What contract?

MR. McALLISTER: If you will just keep quiet a minute I will finish the question.

EXAMINER SPENCER: Proceed.

BY MR. McALLISTER:

Q. Isn't it a fact under the contract between New Jersey Power & Light Company and Utility Management Corporation that you as chief electrical engineer are called upon to design and supervise the construction of important inter-connecting transmission lines between New Jersey Power & Light Company and any other utility with which they will be connected?

MR. PAXSON: Objected to. He has already testified he isn't acquainted with the contract.

MR. McALLISTER: He knows this question. He can answer this question.

EXAMINER SPENCER: Objection overruled and exception noted.

THE WITNESS: I have no knowledge of the contract.

BY MR. McALLISTER:

Q. As a practical matter when a subsidiary of—strike that question.

As a matter of fact, Mr. Sibley,—

Strike the whole thing again.

Mr. Sibley, what are your functions as chief electrical engineer for the Utility Management Corporation?

A. Well, they vary. I am at the call of the sponsors of the properties, the group managers of the properties, the engineering office in New York on various problems that come up. When a property desires to do some new work, it makes out a requisition for it, submits drawings of it, and I take those drawings and try to determine whether the work will be a good job when it is done, whether the cost will be at least consistent with good work. The detailed engineering of any major generating station which we build, the electrical equipment installed in that generating station, is usually designed under my direction. We act

both as consultants, and when we act as consultants we act for the properties. They have a perfect right to call us in and ask us for our opinion and when we have an explicit job like the construction of a large generating station, that is always done within the organization.

Q. What authority has one of the operating properties to which you have referred, what authority do they have to engage in additions and betterments without the approval of the Utility Management Corporation?

MR. PAXSON: Objected to. He can't speak for the operating properties as to their authority.

EXAMINER SPENCER: Objection sustained. Mr. McAllister, if you will confine your questions to these corporations that are involved here, perhaps we can make more progress.

MR. McALLISTER: It is a known fact, Mr. Examiner, that the contracts with the Utility Management Corporation are all identical.

EXAMINER SPENCER: All what?

MR. McALLISTER: They are all identical between operating properties. They may be different in dates, but the substance of the contracts are the same.

MR. PAXSON: I object to that statement and ask it be stricken. Mr. McAllister is not testifying. As a matter of fact I know the statement to be untrue.

EXAMINER SPENCER: The statements of counsel do not go in the record as evidence in any event.

BY EXAMINER SPENCER:

Q. Mr. Sibley, let me ask you this question, please, sir.

Does Utility Management Corporation have any control over extensions, improvements or betterments that the New Jersey Power & Light Company or the Jersey Central Power & Light Company may wish to make?

A. It may. To be truthful, I am an electrician and I am not familiar with the management. We are really the engineering division of this Utility Management Corporation and up until a few months ago we were strictly the Gilbert Organization, and at that time I had no knowledge of what the Utility Corporation operated and today I only have that knowledge by hearsay. I go in and do my work and I don't know much about the contractual relations.

MR. AUTENRIETH: Mr. Examiner, I think unintentionally Mr. Sibley included the Jersey Central. We have nothing to do with them.

THE WITNESS: Did I say that?

EXAMINER SPENCER: I think maybe I did that inadvertently.

BY MR. McALLISTER:

Q. You stated you were Vice President of Utility Management Corporation?

A. That is right, in charge of engineering.

Q. In the performance of your duties in that position do you mean to say that you do not know the extent of your authority in connection with electrical construction by New Jersey Power & Light Company?

A. No, I don't know how far my authority goes. We are asked for our opinions and we submit reports and we make investigations, and we do work as requested by the properties.

Q. In other words, you mean to say New Jersey Power & Light Company determines whether or not this line will be built entirely independent of Utility Management Corporation?

A. I imagine they would be the preliminary doping.

Q. Would they have the final judgment and say whether the line would be constructed or not?

A. I don't suppose they would if there was a large amount of money to be spent.

BY EXAMINER SPENCER:

Q. To your knowledge has this matter been presented to your company, the matter of extending the line?

A. I have no knowledge of it.

BY MR. McALLISTER:

Q. Then, I presume, Mr. Sibley, we are to understand you as saying upon the record in this case that you have no knowledge of the extent of your authority or the authority of Utility Management Corporation over the design or construction of a transmission line connecting New Jersey Power & Light Company with Jersey Central Power & Light Company?

MR. PAXSON: Objected to. He has already stated he didn't know there was such a line to be constructed.

EXAMINER SPENCER: He has testified he knew nothing of the contract or the line had not been presented to his company or to him.

MR. McALLISTER: I went further than that. I just want him to answer that question and we will then understand whether or not he knows the limits of his authority and the authority of Utility Management Corporation by whom he is employed, in so far as that contract might determine his authority, or the authority of Utility Management Corporation over the design or construction of a transmission line from New Jersey Power & Light Company to some other operating public utility.

Now he knows that or he doesn't know it, and he can state his answer very easily.

MR. PAXSON: The Commission has no jurisdiction over Jersey Central.

MR. McALLISTER: I intended to say New Jersey Power & Light Company and I didn't think I put in Jersey Central.

EXAMINER SPENCER: Answer the question.

MR. PAXSON: Objected to for the reason stated.

EXAMINER SPENCER: Overrule the objection.

THE WITNESS: I do not know the authority that Utility Management Corporation, to what extent the authority of Utility Management Corporation would go over the construction of transmission lines on behalf of the New Jersey Power & Light Company.

BY MR. McALLISTER:

Q. Does your answer extend to the design or construction as the question was put?

MR. PAXSON: Same objection.

THE WITNESS: Well, I am trying to make myself clear, the way I work.

MR. McALLISTER: Mr. Examiner, I ask the question be answered and then the witness explain it as he sees fit.

EXAMINER SPENCER: All right, Mr. Sibley, if you can answer the question yes or no, you may do so, and then explain your answer.

BY MR. McALLISTER:

Q. The original question included and comprehended design and construction of transmission lines. Your answer limited it to construction. I now ask you if your

answer was intended to include design or would it be the same insofar as my primary question related to design?

A. I don't know how far our authority extends.

Q. Your authority, you are referring to your individual authority or are you referring to the authority of Utility Management Corporation?

A. I am referring to the authority I know about as an electrical engineer on the Utility Management Corporation's staff.

Q. Am I to understand from your answer that you don't know individually the extent of your authority as Vice President and Chief Electrical Engineer of Utility Management Corporation over the design or construction of transmission lines by New Jersey Power & Light Company?

A. Yes, that is a true statement. These operating utilities request us to make reports and investigations and do work. How much authority we have to insist that lines are built in accordance with your recommendations, I do not know. In fact, I have seen lines built against possibly our recommendations.

Q. You said up until a few months ago you were employed by the E. M. Gilbert Engineering Company. Is that true?

A. That is correct.

Q. Are you familiar with the contract that E. M. Gilbert Engineering Company has with the New Jersey Power & Light Company?

A. No, sir.

Q. You don't know anything about the terms of that contract?

A. No, sir.

Q. Do you know as a matter of fact, Mr. Sibley, that under the terms of that contract a certain percentage on all construction by New Jersey Power & Light Company is charged and is to be paid by New Jersey Power

& Light Company to E. M. Gilbert Engineering Company?

A. Only through hearsay. I have never seen the contracts and never been explained to me.

Q. As a practical matter you know that is done, isn't that true?

MR. PAXSON: Objected to. He says he has no knowledge. That is pure hearsay.

MR. McALLISTER: As a practical matter I am asking him as a matter of fact if he doesn't know that is done.

MR. PAXSON: I persist in my objection for the reasons given. He says all he knows is hearsay.

EXAMINER SPENCER: You are referring to the contracts?

MR. McALLISTER: I am not referring to the contracts. I am saying as a practical everyday matter, does he not know that a certain percentage is added to the construction cost as compensation to E. M. Gilbert Engineering Company for supervision and other work which under the contract they are required to supply.

EXAMINER SPENCER: You can answer the question.

A. Under the E. M. Gilbert Engineering organization I held the position as Vice President in charge of Electrical Engineering. We had a Vice President in charge of mechanical engineering and a Vice President in charge of accounting, and he was the one that always handled those things.

MR. McALLISTER: I ask that the question be read by the reporter and that the witness be directed to answer the question as put.

EXAMINER SPENCER: Can you answer the question, Mr. Sibley, yes or no? As a matter of practice are these things occurring under the contract, do you know.

MR. McALLISTER: I didn't say under the contract. I said as a matter of fact, as a practical matter, does he not know that that particular percentage is applied and added to the cost of construction on the New Jersey Power & Light Company?

MR. PAXSON: What percentage?

MR. McALLISTER: Whatever it is, 1½ or 2 per cent.

BY EXAMINER SPENCER:

Q. Do you know, Mr. Sibley?

A. No, I am not sure of it.

Q. Can you answer the question yes or no, that it is added or not added as a matter of practice?

A. There is in our estimates we make out, I believe there is something added, but I don't know how much it is.

BY MR. McALLISTER.

Q. You are not referring now to the percentage that is added to take up errors in calculations and so on, 10 percent added to cover additional small items that may not be taken into consideration in the estimate, do you? It isn't that percentage?

A. No, that isn't the percentage. There is something else I don't know what it is.

Q. You mean to say on the stand here today that the E. M. Gilbert Engineering Company on construction work performed by or for New Jersey Power & Light Company makes and collects a charge, a percentage charge, based upon the cost of that construction work?

A. They may, but I don't know what it is.

Q. I am asking you as a fact if they do do it, do you mean to say here today that you do not know whether that is a true statement of fact or not?

A. Well, as a matter of fact I don't believe that I personally have done any electrical work for New Jersey Power & Light Company for quite a while. The last large work we did was on the Gilbert Station and that was handled by the mechanical engineer.

MR. McALLISTER: I ask the question be read and the witness be directed to answer the question.

EXAMINER SPENCER: Read the question.

(The reporter thereupon read the two preceding questions and answers thereto as recorded.)

BY EXAMINER SPENCER:

Q. Now, Mr. Sibley, can you state whether or not that is a fact?

A. I believe a charge is added, your Honor, but I don't know how much.

EXAMINER SPENCER: All right, proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. Mr. Sibley, are you consulted by New Jersey Power & Light Company as to means by which integration of operation of that company with other companies closely associated with New Jersey Power & Light Company through the Associated Gas and Electric Company,—read that question, I have got myself twisted up.

(The reporter thereupon read the question as propounded.)

BY MR. McALLISTER:

Q. Can be accomplished?

MR. PAXSON: Objected to as involving a conclusion. I don't know what closely associated means. That certainly brings in a legal conclusion.

EXAMINER SPENCER: How does that bear on the question of public utility status of this Jersey Central Power & Light Company?

MR. McALLISTER: I will name the companies.

EXAMINER SPENCER: I want to know.

MR. McALLISTER: I will establish it very clearly and am perfectly willing to have an understanding if I don't establish it you can strike the whole thing physically.

MR. PAXSON: I don't know what the purpose is. I would like to have an offer. You are going far afield as usual.

MR. McALLISTER: I am not far afield.

MR. PAXSON: Well, you are.

MR. McALLISTER: This witness has testified about the connections of this company with Philadelphia Electric Company, Pennsylvania Power and Light Company, Staten Island Edison Corporation, Metropolitan Edison, and I don't know how many more. Now I am asking him a question as to whether or not New Jersey Power & Light Company in determining whether or not there shall be, I asked him whether or not he is consulted in determining whether or not New Jersey Power & Light Company shall be integrated with other companies in Associated Gas and Electric System.

EXAMINER SPENCER: Let him answer.

MR. PAXSON: Objected to unless he defines what he means by integrated. I used a little simple word, such as relationship, and he insisted on my defining that yesterday and I tried to.

MR. McALLISTER: Oh, it is a simple term, tied

together for operation. I am satisfied with that definition. It may mean more.

EXAMINER SPENCER: All right, proceed. You want an objection, Mr. Paxson?

MR. PAXSON: Yes, I object.

EXAMINER SPENCER: Note the objection of counsel for the respondent. The witness may proceed to answer that question.

THE WITNESS: I have no recollection of the New Jersey Power & Light Company requesting any information from me concerning the construction of new transmission lines to integrate with some other company.

BY MR. McALLISTER:

Q. Does any other person in the Associated Gas & Electric System—

MR. PAXSON: (interposing) Objected to unless he defines person. I myself don't know what he means by person, whether an individual or—

BY MR. McALLISTER:

Q. (interposing and continuing)—consult with you in connection with any plan of integration which involved New Jersey Power & Light Company with other companies in the Associated Gas and Electric System in the states of New Jersey and New York?

A. I have discussed in general some interconnections, but nothing so far has been definitely determined or decided as far as I know.

Q. Well, to be more specific, the application filed on behalf of New Jersey Power & Light Company with the securities and Exchange Commission, File No. 46-98-1-1, under date of April 11, 1938, sets forth on page 7.

MR. AUTENRIETH: Does it show who filed it?

MR. McALLISTER: New Jersey Power & Light Company. The following:

"Applicant is further advised that Jersey Central Power & Light Company has available excess generating capacity of approximately 55,000 kilowatts. Applicant is also advised that Staten Island Edison Corporation, which is an indirect subsidiary of NYPANJ Utilities Company through the ownership of its voting stock by New York State Electric and Gas Corporation, a direct subsidiary of NYPANJ, can be connected by construction of a short transmission line with the generating facilities of Jersey Central Power & Light Company at South Amboy, New Jersey. This will make available to Jersey Central Power & Light Company an opportunity to dispose of electrical power at wholesale to Staten Island Edison Corporation, utilizing therefor a portion of its present excess generating capacity and thus giving to Jersey Central Power & Light Company additional earnings available for dividends on its common stock, and furnish Staten Island Edison Corporation with a source of additional power."

Further, on page 8, in the same application, the third and fourth paragraphs on page 8 of that application, the following appears:

"The electric properties of applicant"—that is New Jersey Power & Light Company—"and the Staten Island Edison Corporation are not now interconnected by virtue of facilities owned and operated by either company and the acquisition of the common stock of Jersey Central Power & Light Company as herein contemplated will make possible the direct interconnection of Staten Island Edison Company and of the applicants through the medium of the transmission lines of Jersey Central Power & Light Company, thus

bringing together into a geographical integration a public utility system, the subsidiaries of NYPANJ Utilities Company.

"Attached hereto as Exhibit H is a map showing the location of the properties of applicant, Jersey Central Power & Light Company, and the Staten Island Edison Corporation, showing their principal electric transmission lines in the areas in which gas is distributed."

In a statement contained in their amendment filed under date of May 5, 1938, on page 5 of that amendment, which is amendment No. 2 to the application that I read from in the first instance, it appears in tabular form on the bottom of the page, a tabulation or estimated minimum earnings applied to Jersey Central Power & Light Company common stock and estimated value thereof, which sets forth the present earnings on a twelve months basis. Then as the second item in that tabular statement, the following appears:

"Estimated increase in earnings which would result on the utilization of unused capacity," and opposite that statement and under a top heading of total earnings available of Jersey Central Power & Light Company appears the figure $400,000, and in the last column of this tabulation the capitalization value at 6 per cent, $4,500,000. As I read the statement it means—

MR. PAXSON: Objected to as a conclusion. He is purporting to read something and says it means something. He is not testifying.

EXAMINER SPENCER: Objection sustained.

MR. McALLISTER: Well, I have identified the item, Mr. Examiner, and at this time—

MR. AUTENRIETH: Wait a minute, is there a question pending?

MR. McALLISTER: There is no question.

MR. AUTENRIETH: I move everything that has been read be stricken.

MR. McALLISTER: I will ask a question.

MR. AUTENRIETH: Wait a minute.

EXAMINER SPENCER: All right.

MR. AUTENRIETH: It is not a declaration by Jersey Central Power & Light Company, it is the New Jersey Power & Light Company. We are not parties to it in any sense. Furthermore it seems to be a prophecy of something that is going to happen in the future. I think it should be stricken from the record.

EXAMINER SPENCER: We will see what question Mr. McAllister wants to ask.

MR. PAXSON: Pardon me. I want to add my objection because on its face it shows it is something filed in April, 1938, and is purely prospective and can have no probative value in determining the status on March 14, 1938 of Jersey Central Power & Light Company.

EXAMINER SPENCER: Proceed, Mr. McAllister.

MR. AUTENRIETH: He said he had another question.

BY MR. McALLISTER:

Q. Mr. Sibley, did you have any part in the laying out of the plan for the integration set forth in the application to the Securities and Exchange Commission of which I have read a part?

MR. AUTENRIETH: I think if that question is based upon what has been read into this record, the question is improper so far as the Jersey Central Power & Light Company is concerned, because here we have read from a voluminous report a declaration by another company and unless there is some action ruling it out or letting it remain, that stands uncontradicted.

EXAMINER SPENCER: I will make a definite ruling.

MR. PAXSON: We have asked for an offer of proof.

MR. McALLISTER: Let's see what the witness answers.

MR. PAXSON: We now ask for an offer what Mr. McAllister proposes to show by that question. It certainly is no part of any proper cross examination on anything that has been brought out on direct examination of Mr. Sibley by the farthest stretch of the imagination.

EXAMINER SPENCER: Mr. McAllister, did you frame your question?

MR. McALLISTER: Yes, I did, Mr. Examiner.

EXAMINER SPENCER: Read the question, Mr. Reporter.

(The reporter thereupon read the pending question as recorded.)

EXAMINER SPENCER: Just a moment before you answer. The Examiner will permit the statement read in that record to remain in this record for the purpose of identifying a particular transaction upon which Mr. McAllister based a question directed to the witness as to his participation, if any, in that transaction.

As to the Jersey Central Power & Light Company, from the record of the Securities and Exchange Commission, that will not be permitted to stand in this record.

MR. McALLISTER: Mr. Examiner, may I be heard on that question?

EXAMINER SPENCER: You may.

MR. McALLISTER: The Jersey Central Power & Light Company came in here as intervenors.

EXAMINER SPENCER: Yes.

MR. McALLISTER: And filed before us their application to become a party to the proceedings. They have no standing apart from the proceeding that was instituted. They have no individual rights apart from the rights of the others. They can be heard and participate, but they have no issue separate and distinct from the respondent.

EXAMINER SPENCER: Does the application filed with the Securities and Exchange Commission refer to the Jersey Central Power & Light Company as a party, or is the Jersey Central Power & Light Company a part to it?

MR. McALLISTER: I don't know.

MR. AUTENRIETH: We are not parties.

EXAMINER SPENCER: Will you look and see. You have the record there.

MR. McALLISTER: I don't have the record. I have a file which carries the application of New Jersey Power & Light Company in which they seek to acquire the stock of the Jersey Central Power & Light Company, and in the course of their application, stating under oath the reasons they set forth as jus-

tifying their claim that the acquisition is in the public interest. They set forth these various matters which they contend establish the fact that permission from the Securities and Exchange Commission or a granting of authority by Securities and Exchange Commission would be in the public interest. Now I presume if Jersey Central Power & Light Company has an interest in the matter they can intervene.

MR. AUTENRIETH: We haven't seen that and are not parties to it. I object to the form of the proof.

EXAMINER SPENCER: I think the Jersey Central Power & Light Company can not be bound by what the New Jersey Power & Light Company has said in that petition unless it appears that they are parties to it, and my ruling will stand on that. Now the witness may answer the question.

THE WITNESS: I never saw this application before.

BY EXAMINER SPENCER:

Q. That wasn't the question before. His question was whether or not you were consulted about any of that transaction or participated in the preparation of the plan.

BY MR. McALLISTER:

Q. Which is set forth in this application.

A. As I remember there was a statement there like $400,000 for something I have no knowledge or recollection or memory or anything like that. Now as far as ever having any conversation with anybody about certain things here, I think in an offhand way I have, but I have never prepared a list of construction costs.

Q. That is not answering the question.

MR. McALLISTER: I wish your would have the

reporter read the question, please, Mr. Examiner, and ask that the question as put be answered.

BY EXAMINER SPENCER:

Q. Did you participate in the preparation of the plans?

MR. McALLISTER: Or any plan.

BY EXAMINER SPENCER:

Q. Or any plan referred to in that statement read by Mr. McAllister.

MR. McALLISTER: Mr. Examiner, you are narrowing my question. It is in this or anywhere which has as its purpose or contemplation the integration of these systems in the manner in which it is set forth in this application.

BY EXAMINER SPENCER:

Q. Answer the question, Mr. Sibley, directly, please.

A. I had nothing to do with the data in that report as far as I know.

EXAMINER SPENCER: All right, sir.

MR. McALLISTER: That is not answering the question.

BY MR. McALLISTER:

Q. I mean did you, Mr. Sibley, participate in any way or have anything to do with the laying out of the plan for the integration of these companies in the manner in which it is stated in here, the tying together of these companies I named, in reading from this application, the integrating of those systems, that is the New Jersey Power & Light Company, Jersey Central Power & Light Company and Staten Island Edison Corporation?

A. Well, I have had conversations with these different companies, but as far as making up a report, I didn't make it.

BY EXAMINER SPENCER:

Q. Have you participated in the preparation of any plan for integration?

A. I have discussed such a scheme with these operating companies. I have talked that matter over with them.

Q. As a result of your discussion was any definite plan prepared and submitted to you which you considered or approved?

A. No.

EXAMINER SPENCER: Mr. McAllister, I think that answers the question.

MR. McALLISTER: Mr. Examiner, the application of the New Jersey Power & Light Company to the Securities and Exchange Commission which I have just read relates circumstances under which the securities which are involved in the present procedure before this Commission were acquired and contains pertinent data regarding New Jersey Power & Light Company and Jersey Central Power & Light Company, and I would like to offer for the record at this time by reference the application of New Jersey Power & Light Company as filed with the Securities and Exchange Commission, but in such offer I wish to exclude therefrom that part—

EXAMINER SPENCER: (interposing) Let me interrupt you, Mr. McAllister, can you not offer it by pages?

MR. McALLISTER: Not by pages, but by divisions I can. I am getting ready to state I want to exclude the voluminous part we are not concerned with.

EXAMINER SPENCER: All right.

MR. McALLISTER: Will you pick up my statement where I left off, Mr. Reporter?

(The reporter thereupon read the portion of the statement of Mr. McAllister as requested.)

MR. McALLISTER: (continuing)—of the application which sets forth the terms of bond indentures, certificates of incorporation, and the like. In other words, I offer the original application and the amendments to that application, including the exhibits referred to in the application and amendments, excluding therefrom those documents which may be generally termed articles of incorporation, indentures and certificates of incorporation. I ask that that application with the amendments referred to be received in evidence by reference.

EXAMINER SPENCER: Mr. Paxson.

MR. PAXSON: If the Commission please, I thought we were engaged in the cross examination of the respondent's witness. I didn't know the Commission was putting in its case. It has already put in its direct case and it is not yet in the rebuttal stages so, I can't see how it has any pertinency. Passing that, however, I object to the offer of this in evidence, as no purpose has been stated. Mr. McAllister has stated it has something to do with the securities now under discussion.

While I have never seen this application or have had anything to do with its preparation, I am a member of a large firm, and I don't believe our firm passed upon it, but I do have some hearsay knowledge which I believe to be correct that an application has been filed. He gives the date. I don't know when he says it was in April, it is for the acquisition of other shares of stock of the Jersey Central Power & Light Company.

Now what probative value can this have in relation to do with the securities not under consideration here?

Apart from that it is a very compendious record. It may have all sorts of conclusions. I don't know what it contains. We are not trying the Securities and Exchange Commission case here. The facts are not in any way related. Some of the statements which may be inferences or conclusions may be disproved, although they may be the best information and belief of the person who filed the application. It is incompetent, immaterial and irrelevant and burdening this record unnecessarily.

There ought to be some limits to what is included in the record. I am speaking from my experience with New Jersey Power & Light Company and experience with this Commission. The cost of printing involves thousands of dollars and this is thrown in only in the hope it might turn up something. I think the Commission ought to administer matters in the interest of economy to New Jersey Power & Light Company which is so often lost sight of.

MR. AUTENRIETH: May I also add my objection on behalf of Jersey Central Power & Light Company in that it is not a party to the application of the New Jersey Power & Light Company with the Securities and Exchange Commission?

EXAMINER SPENCER: The ruling on the admission of this record will be deferred until cross examination is completed.

Proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. Mr. Sibley, on page 676 of the record,—

MR. AUTENRIETH: (interposing) Page what?

MR. McALLISTER: 676.

BY MR. McALLISTER:

Q. You related 300 kilowatt hours per month over a certain period to the quantity of kilowatt hours per month that would be required to operate a water heater in a home. Why did you pick a water heater?

A. Well, on page 26 of the General Electric Diary there is a list of the consumption in kilowatt hours per month of various devices. I simply picked that because it was the most representative.

Q. All right, how about a vacuum cleaner, how much does it take to run that?

A. A vacuum cleaner takes 3 kilowatt hours per year.

Q. Do you heat water in your own home with electricity?

A. Well I don't, because I happen to heat my house with gas, so we have two in one.

Q. What is the average consumption on the Staten Island Edison Corporation per year by domestic users of electricity for lighting homes, houses?

A. I don't know.

Q. I will modify that question. What is the average domestic use of electricity on the Staten Island Edison Corporation for all uses in the home?

A. I don't know.

Q. I show you the annual report of the Staten Island Edison Corporation and ask you if that is not shown on page 603 of that report as being 727 kilowatt hours?

MR. PAXSON: Just a moment, please. I object. Mr. Sibley does not represent the Staten Island Edison Corporation. He does not know anything about what is contained in its reports. It is not competent.

EXAMINER SPENCER: The objection is sustained. The report may be offered, Mr. McAllister.

MR. McALLISTER: I am merely asking him if that is not shown in the report.

EXAMINER SPENCER: You would have to identify the report.

BY MR. McALLISTER:

Q. Mr. Sibley, will you state what that report is (indicating)?

MR. PAXSON: The same objection, that he shows the purpose.

BY MR. McALLISTER:

Q. I will show you a document and ask you what it is (indicating)?

A. This is the first time I ever saw it, but it says it is an EPC form No. 1, Electric Utilities and Licensees of Class A and Class B. Annual Report of Staten Island Edison Corporation, 4845 Bay Street, St. George, Staten Island, New York. To the Federal Power Commission for the year ending December 31, 1937.

Then there are some stamps on it, "acknowledged" and "approved".

Q. I will ask you to look at the last page and state whether or not that is verified and, if so, by whom?

MR. PAXSON: If he had nothing to do with the preparation how can he tell whether it is verified or not. He can read it; but the stenographer can do that.

MR. McALLISTER: That is true, Mr. Examiner. But he has testified from an examination of records in substations and general offices on the lines of the Staten Island Edison Corporation, the Jersey Central Power and Light Company and New Jersey Power and Light Company. This is merely another document submitted by the Staten Island Edison Corporation which was submitted by them from their records.

EXAMINER SPENCER: If he knows the signature of the person who signed it and he can state that that is a report, I will let him testify.

THE WITNESS: There are two signatures on here. The first one looks like "William Kinzle" and then it is attested. Then there is another signature here—"W. E. Mange"; and that signature has been attested.

BY MR. McALLISTER:

Q. Now, Mr. Sibley, will you please look at page 609?

MR. PAXSON: Do you know those signatures, Mr. Sibley? That was the question he asked you. You have had a great struggle with one of them.

THE WITNESS: I cannot swear that they are signatures.

BY MR. McALLISTER:

Q. I am merely asking you to identify the fact that it was verified by the signature of the president. I am not asking you whether or not that is the signature. Mr. Lytle identified the signatures the other day.

MR. PAXSON: We admit it purports to be verified.

EXAMINER SPENCER: Please proceed with the examination. What is your question?

MR. McALLISTER: I stated this, Mr. Examiner, that I did not ask this witness to identify and testify whether or not that was the signature of the President.

I followed that statement with the further statement that this particular report was identified by Mr. Lytle when he was on the stand the other day, and he did state that that was the signature of the president.

EXAMINER SPENCER: Has that report been introduced before?

MR. McALLISTER: It has been referred to before and was identified by witness Lytle, who said he knew the signatures of both of those men, and that they were correct.

EXAMINER SPENCER: I remember that one report was identified by one of the witnesses, if this is the report.

MR. McALLISTER: That is one of the reports. There were other reports that were identified. I cannot give you the page now, but I am certain it is in the record.

BY MR. McALLISTER:

Q. On page 603 will you state what is shown there as being the average domestic consumption on the Staten Island Edison Corporation for the year 1937?

A. If I read the report correctly it is 727 kilowatt hours per customer. That value appears in the fifth line down.

Q. On page 603?

A. Yes.

Q. If you had related your answer, as stated on page 676, dealing with the quantity of energy used to operate a home water heater and the quantity of energy required on the average for domestic consumption on the Staten Island Edison Corporation, you would have given a very much different answer, would you not?

A. Those kilowatt hours were what? The emergency kilowatt hours were what?

Q. 8125, I think.

A. 8125?

Q. Yes.

A. And was that 747 kilowatt hours?

Q. No; it was 727 kilowatt hours.

A. Now, Mr. McAllister, what was your question?

Q. If instead of relating the 8125 kilowatt hours to the quantity of energy required to operate a home water heater you had related it to the quantity of electric energy that would be consumed in a home or the average as stated by the Staten Island Edison Corporation in their annual report, you would have reached an entirely different conclusion, would you not?

A. I find that this emergency 8125 kilowatt hours divided by the average yearly domestic consumption on the Staten Island Edison Corporation for the year 1937 would show that one such customer would be supplied for 11½ years.

Q. Putting it in another way, Mr. Sibley, it would supply 11½ customers for one year, would it not?

A. Yes; that is right.

EXAMINER SPENCER: Gentlemen, at this time we will recess for ten minutes.

(Thereupon, a short recess was taken, after which the following occurred:)

EXAMINER SPENCER: Mr. McAllister, you may proceed with your examination.

BY MR. McALLISTER:

Q. Mr. Sibley, the respondent introduced in evidence in this case two exhibits which were numbered respondent's exhibits Nos. 4 and 5. In referring to them yesterday I believe you picked off of those exhibits a figure of 8125 kilowatt hours of emergency energy about which you answered some questions just previous to the short recess. Isn't that true?

A. I will take your word that it is true.

Q. I didn't know, but I understood it was true. I understood it was from one of those exhibits that you got that figure of 8125.

A. Yes; I read this figure from these exhibits.

Q. As a matter of fact, Mr. Sibley, you know, do you know, that the total energy which was delivered to the Staten Island Edison Corporation by the Public Service Electric and Gas Company during the year 1937 was something in excess of 3,000,000 kilowatt hours, do you not?

MR. PAXSON: Just a moment, please. I object to the use of the word "delivered" unless he explains. It he means it flowed over, we will accept it. There has been a lot of testimony about this 3,000,000 kilowatt hours and incidental power, but the word "delivered" may have a legal significance. I think it does have.

EXAMINER SPENCER: Are you referring to all kinds of power, Mr. McAllister?

MR. McALLISTER: I am referring to electric energy which was metered by the Public Service Electric and Gas Company as moving from that company to the Staten Island Edison Corporation in 1937, which is shown by various exhibits in this record.

EXAMINER SPENCER: In any event, you mean the energy that passed from the Public Service Electric and Gas Company to the Staten Island Edison Corporation, no matter whether it was incidental or economy or other energy, and without respect to whether it was purchased under contract or otherwise? Is that true?

MR. McALLISTER: I am not bringing in any of those questions. I am not concerned with that.

EXAMINER SPENCER: I am asking you a direct question, Mr. McAllister. Is it or is it not true.

Am I mistaken in interpreting the meaning of your question?

MR. McALLISTER: I am referring to the quantity that is shown on Exhibit No. 5, which was introduced on behalf of the Commission, which shows energy purchased from others and energy purchased from Public Service Electric and Gas Company shown on this statement headed "Staten Island Edison Corporation", and which sets forth, as testified to by Mr. Grimsley, facts reported by the Staten Island Edison Corporation in their sworn statement filed with the Federal Power Commission for the year 1937.

EXAMINER SPENCER: That clarifies it. You may proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. With respect to that quantity of energy, Mr. Sibley, if it was utilized by the Staten Island Edison Corporation for the lightings and domestic use in accordance with its experience as stated in its annual report, that the average domestic consumption was 727 kilowatt hours per year, how many homes would that quantity of energy light over a period of a year? The figure as stated in that report is 3,093,400 kilowatt hours.

A. I don't have that exhibit.

Q. That is exhibit No. 5. That would be in this other bunch over here (indicating).

A. Well, I have No. 5.

Q. But you have respondent's exhibit No. 5. The other one that I am referring to is Commission's exhibit No. 5. This is the figure to which I am referring (indicating).

A. Taking 3,093,400 kilowatt hours, divided by the average quantity consumed by the domestic consumer of the Staten Island Edison Corporation in 1937, the quotient is 4260.

Q. That would be 4260 of the average character served by the Staten Island Edison Corporation to supply their entire requirements out of that 3,093,400 kilowatt hours?

A. I don't think that is exactly true, Mr. McAllister, because this 3,093,400 kilowatt hours was not of a continuous nature; it could not be depended upon to light 4260 homes.

Q. I indulged in that relationship only because in dealing with emergency energy, which was over a very short time, you said that it would provide a quantity sufficient to operate an electric water heater for a period of a year.

Now, Mr. Sibley, relating these other quantities to a practical use in that sense for the purpose of determining how much it is, as you would view it in its practical application, it would show that if 4260 homes could be lighted on the Staten Island, that quantity of energy would supply the amount required for domestic consumption of 4260 homes of the average character supplied by the Staten Island under the same assumption in which you indulged in making the analogy which you did indulge in in relation to the quantity consumed in operating the electric water heater. Isn't that true?

A. No, sir. That is not quite comparable. The 8125 kilowatt hours came over at a time when it was badly needed on Staten Island. This 3,093,400 came over at various and different times.

Q. It came over the line and it was made use of to the extent it was required by the loads of the Staten Island Edison Corporation?

A. No, sir. You can't compare it. That energy was not dependable energy. It came over the line, it is true, but it came over the line at times when it was not required.

Q. Forgetting everything but the question of its utility as a quantity, if put together in one block it would accomplish what your computations show, would it not, that 3,093,400 kilowatt hours of electric energy used on the sys-

tem of the Staten Island Edison Corporation will provide 4260 homes with their requirements for electric power over a period of one year?

A. I don't think that is true for these particular kilowatt hours.

Q. I am not referring to these particular kilowatt hours. I am saying that that quantity of electric energy will have that utility value on the system of the Staten Island Edison Corporation.

A. As I stated previously, 3,093,400 kilowatt hours divided by the average consumption of one customer for a year, that quotient is 4260.

Q. I am asking you, Mr. Sibley, if that does not mean that that quantity of energy would be the quantity of energy consumed by 4260 homes on the Staten Island Edison Corporation of the character indicated by the average domestic consumption on that system in the year 1937.

A. 4260 homes during the year 1937 at an average rate of 727 kilowatt hours per customer per year would amount to 3,093,400 kilowatt hours.

Q. And 727 kilowatt hours is the average domestic consumption on the system of the Staten Island Edison Corporation, isn't it?

A. I believe that is true.

Q. Do you know what is the total number of domestic customers served by Staten Island Edison Corporation?

A. No, sir.

Q. I show you the same volume that you identified a little while ago, Mr. Sibley, being the annual report of the Staten Island Edison Corporation.

MR. PAXSON: I don't know that Mr. Sibley has identified it, Mr. Examiner. But I do not want to be captious about it at all.

EXAMINER SPENCER: What is the question that you are asking, Mr. McAllister?

MR. McALLISTER: I would like to ask this question of the witness.

EXAMINER SPENCER: You may proceed with your examination, Mr. McAllister.

BY MR. McALLISTER:

Q. I will ask you to refer to page 603, which is the same page to which you referred before, Mr. Sibley, and state the total number of domestic consumers on the Staten Island Edison Corporation for the year 1937 as reported by that company in their annual report to the Federal Power Commission.

A. On page 603, in the column headed "B", the first entry under that column, which is the fifth space, opposite "residential customers" or, rather, "residential service" there is a figure of 40,469, which may be the number of residential customers.

Q. How is that column headed?

A. It is headed "average number of customers per month".

Q. And the statement is for the year 1937, is it not?

A. Yes, sir; it is so stated at the top of the page.

Q. I will ask also, Mr. Sibley, that you follow on over that same line, which is designated "residential service", and in the last column, and state what is the average price per kilowatt hour for the year 1937 charged for residential service.

A. In the last column on page 603 of the 1937 annual report of Staten Island Edison Corporation, the fifth line down, and opposite "D", Residential Service, there is a figure of 5.92.

Q. And that column is headed how?

A. It is headed "Revenue per kilowatt hour".

EXAMINER SPENCER: Proceed, Mr. McAllister.

MR. McALLISTER: The witness was studying the report and I thought perhaps he had something further to say.

THE WITNESS: I thought I answered your question.

MR. McALLISTER: I did too, but I thought you had some question about the report.

THE WITNESS: It is the first time I saw it, and it amused me.

MR. McALLISTER: I thought the witness was going to add something to his answer, and I didn't want to cut him off before he did it.

EXAMINER SPENCER: I thought he had answered. So you may proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. Obviously that figure of 5.92 which you read is a statement in cents, isn't it?

A. I think that is correct. It would look to be about right to me.

Q. If there is any question about it, the money is shown here and the kilowatts. If that is correct it will eliminate the necessity of going into that computation.

A. I will accept that. It looks right.

Q. It has been called to my attention that it is headed "cents" in the column there, Mr. Sibley.

A. Yes; it is.

Q. So there is no question about it. I had not noticed that.

A. Yes; it is so headed.

Q. Now, Mr. Sibley, will you please refer to respondent's Exhibit No. 7, which I believe you introduced in the record and which you stated was prepared by you?

A. Yes. I have it before me.

Q. That exhibit in Column "B" shows for the year 1937 something over three million kilowatt hours, and column "C" shows also for the year 1937 something in excess of three million kilowatt hours. It indicates that during 1937 a total of six million kilowatt hours moved over this interconnection between Mechanic Street Substation and Staten Island Substation at Atlantic? Is that true?

A. That is correct.

Q. As a matter of fact, Mr. Sibley, Jersey Central Power and Light Company sold and delivered something in excess of 55,000,000 kilowatt hours to the Public Service Electric and Gas Company, which was received by the latter Company at Mechanic Street Substation in Perth Amboy, New Jersey. Isn't that true?

A. I don't remember the exact figures, but it was on that order. We can check it over here.

Q. Commission's Exhibit No. 2, which is among the exhibits on the table before you, will show that, Mr. Sibley, if you care to refresh your memory.

A. On Commission's Exhibit No. 2 on page one, near the bottom of the page, under "energy sold for resale", I find Item No. 1, entitled "sold to Public Service Electric and Gas Company at South Amboy"; and the figure for 1937 is 55,421,000 kilowatt hours.

Q. You have made a study of the generation of the Jersey Central Power and Light Company, have you not?

MR. PAXSON: I did not hear the question.

(The question was then read by the Reporter.)

THE WITNESS: I have examined their three stations and am familiar with records which I obtained from the load dispatcher of the Jersey Central Power and Light Company.

BY MR. McALLISTER:

Q. On direct examination you stated, did you not, that you had made a study of their generation?

A. Yes; I examined their generating station log sheets, and I believe they represent the facts.

Q. What was the total generation of the South Amboy plant for the year 1937?

A. Again referring to Commission's Exhibit No. 2, under the heading "energy output by plants", item No. 2, entitled "South Amboy", shows 167,441,300 kilowatt hours for the year 1937.

Q. Of course, Mr. Sibley, you have taken that information which you have read into the record from Commission's Exhibit No. 2?

A. It is a Commission exhibit; but I believe it is true.

Q. Referring to your exhibit No. 7, Mr. Sibley, will you state what conclusions are to be drawn from the last column at the right hand side of that exhibit?

A. In the last column on respondent's exhibit No. 7 we have shown the relation that the net interchange between the Public Service Electric and Gas Company and the Staten Island Edison Corporation bears to the total net generation in all power houses on the system of the Jersey Central Power and Light Company. This is shown monthly for the period beginning August, 1937, up to and including March, 1938.

BY MR. PAXSON:

Q. Do you mean that relation or that comparison?

MR. McALLISTER: The witness prepared this exhibit and I think he is qualified to state what he intended to show.

THE WITNESS: My definition of a relation probably as an engineer would be almost the same thing. We put in the numerator, for instance, 677,800 and in the denominator we put in 32,656,525. You may term it a proportion or a relation or a comparison or express it in percentage, the way I have in this last column.

Q. What conclusion is to be drawn from that? That was my question, Mr. Sibley. I did not ask you how you arrived at it.

A. I am sorry, Mr. McAllister, but I did not understand your question.

The object of this last column was to show the insignificance of this power as compared with the total generation on the Jersey Central Power and Light System.

Q. Will you please look at the month of September, 1935 as a matter of illustration? You show there an excess of 10,000. You show 12,000 on there; but if you subtract those figures it shows 10,000, doesn't it?

A. Yes; it does. I don't know how that figure crept in there. I would be willing to refigure that percentage.

Q. I don't make any point of it.

A. Well, it is true that is an error. Either the difference is in error or else the figures under column "B" or the figure under Column "C".

Q. I am not making any point of that. For the purpose of illustration, Mr. Sibley, there was an excess of energy moving from Staten Island Edison Corporation to Public Service Electric and Gas Company during that month. Isn't that true?

A. The excess was in the amount of power that Public Service Electric and Gas Company received from Staten Island Edison Corporation.

Q. That is correct.

A. Yes.

Q. Now, could that excess in any way have a relation to the generation of Jersey Central?

A. How do you mean?

Q. As a practical proposition.

A. Let me get this right. Do you mean the difference in this ebb and flow of power through that line?

Q. Yes.

A. Is it dependent upon the amount of power gen-

erated in the generating stations of the Jersey Central Light and Power Company?

Q. Yes; when that situation exists where the balance in the period is from Staten Island Edison Corporation to Public Service Electric and Gas Company. As a practical matter it is just an irrational assumption, isn't it, to divide that quantity by the generation on some other system which could not under any circumstances have been related to the excess?

A. I think that is true. I think that statement is true.

Q. You merely divided the two columns B and D by the quantity shown in "A" without relation to any particular conclusion, did you not?

A. The object of this exhibit when it was prepared was to show the smallness of the amount of power as compared with the total generation if all of the energy that flowed from the Public Service Electric and Gas Company to the Staten Island Edison Corporation were generated by Jersey Central Light and Power Company. We know this to be an absurd condition.

Q. The practical situation is this, isn't it, Mr. Sibley: three million kilowatt hours per year flowed over that interconnection from Public Service Electric and Gas Company to the Staten Island Edison Corporation and relatively the same quantity passed in the opposite direction over that interconnection?

A. That is true.

Q. And there is no real reason for determining by what amount the operator has failed to balance out any particular month, is there, insofar as the flow of energy back and forth across that interconnection is concerned? If he balanced it exactly each month with the same total at the end of the year the total quantity of energy passing over the interconnection in the course of that year would have been the same?

A. Yes; it would.

Q. So the matter of just how close he came to balancing doesn't in any way affect the total flow of energy over that interconnection?

A. Well, these two columns were—

Q. Now, Mr. Sibley, will you just answer the question, please? I will give you all the opportunity later to explain your answer.

A. Will you repeat it, please.

EXAMINER SPENCER: Will the reporter read the question, please?

(The question was then read by the Reporter).

THE WITNESS: I do not agree to that.

MR. McALLISTER: Will you read the question again, Mr. Reporter, please?

EXAMINER SPENCER: He just read it. What was your answer, Mr. Sibley?

THE WITNESS: No; I don't think that is true. Had the operator been more alert and more proficient the amount of energy flowing in both directions would have been smaller.

BY MR. McALLISTER:

Q. By that you mean if he had held the needle on the zero mark all of the time he would have eliminated all of it, do you?

A. That is a correct statement—with one exception. This also includes power supplied for economy and emergency service.

Q. As a matter of fact, that is the condition set forth in columns B and C insofar as flow of energy over that interconnection shown is concerned. That is true, is it not, Mr. Sibley?

A. That is a correct statement.

Q. Referring to your exhibit No. 8, Mr. Sibley, what occurred on Staten Island about 2:30 a. m. on the day which is shown on your chart, August 13, 1936, when that block of emergency power was taken by Staten Island Edison Corporation from Public Service Electric and Gas Company, if you know?

A. I don't know.

Q. You don't know?

A. No, sir. All I know is that they required that power.

Q. How did you know that that was taken as emergency power?

A. That was so stated, either by Mr. Lytle or in one of the exhibits as a time that that was emergency power.

Q. Further than that you don't know?

A. Mr. Lytle told me that it was emergency power.

Q. You made no further investigation to determine its cause or anything further in that regard?

A. Mr. Lytle told me what that was. While I did not state and I do not like to state it as a fact, I am of the opinion that it was transmission trouble. But I wouldn't want to say that. Or perhaps it was some insulators or something. I don't know what it was.

Q. What was the load on the Staten Island line at that time?

A. The load of the Staten Island at that time?

Q. The load on their generators at Livingston plant at that time.

A. I don't know.

Q. Do you know whether one or both of the generators or three or four of the generators at the Livingston plant were out of service at that time?

A. I don't know.

Q. What is the distance from Mechanic Street Substation at Perth Amboy to the generating plant at Marion?

A. I don't know.

Q. Do you know the distance to the Essex plant?

A. No.

Q. Or the Kearney plant?

A. No, sir.

Q. Mr. Sibley, have you made any study to determine the source of the energy which supplies the load of the Public Service Electric and Gas Company at Metuchen?

A. No, sir.

Q. Mr. Sibley, I have certain questions, but I can't locate just where your answer is in the record; but my recollection is that in answer to a question by Mr. Paxson you said that there was no relation between the quantity of energy which Jersey Central Power and Light Company would deliver to the Public Service Electric and Gas Company at Mechanic Street substation and the quantity which Philadelphia Electric Company would deliver to the Public Service Electric and Gas Company at their point of interconnection. Did I understand you correctly?

A. I did testify to something of that character.

Q. Just what did you mean by that statement?

A. As I recall that statement, it was this. Well, I can't recall the question, but I understood the facts as I believe them to be, that a flow of economy energy from the Jersey Central Power and Light Company to the Mechanic Street bus of the Public Service Electric and Gas Company would not affect the amount of power transferred between the Public Service Electric and Gas Company and the Philadelphia Electric Company.

Q. You know Public Service Electric and Gas Company has a contract or contracts covering the interchange of energy with both of those companies to which you referred. Isn't it true? By that I mean the Public Service Electric and Gas Company has a contract with the Philadelphia Electric Company under which they have a right to call for certain power under certain terms and conditions?

A. Yes; I believe that is true.

Q. And, likewise, the Public Service Electric and Gas Company has a contract with the Jersey Central Power and Light Company under the terms of which they have a certain arrangement for the interchange of what is termed economy power at Mechanic Street. When I say Mechanic Street I am referring to the interconnection that exists between those companies, between their plant at Mechanic Street and their plant at South Amboy.

A. Yes; I believe such a contract has been referred to either in evidence or by reference or something. I am not familiar with the contract.

Q. As a matter of fact, the Public Service and Gas Company has the option of electing or deciding from which source they will take the power they will require at any particular time? Isn't that true?

A. I imagine that is true.

Q. To that extent it would affect the quantity that would be taken at the other point?

A. I would like to amplify my reply a little bit, if I may.

I base my opinion upon the fact that we consider the flow of economy power is caused because it can be generated more cheaply on some other unit of the supplying company. The determination of this cost would be the sum of the cost to make this power on the part of the transmitting company and the hypothetical price of generating that power by the receiving company. Those two costs are added and divided by two, and that determines the price of that power.

EXAMINER SPENCER: Mr. McAllister, can you complete this cross examination this afternoon?

MR. McALLISTER: No, I cannot complete it this afternoon, Mr. Examiner. I am anxious to conclude it just as soon as I possibly can do so. It may be that

I can simplify the balance of the cross examination if I have an opportunity over the night to assemble the matters about which I want to inquire and limit my questions just as much as possible so that we can get through. I am anxious to conclude this hearing just as soon as possible.

Mr. Morris, in the course of his testimony, Mr. Examiner, made the statement that revenue derived by Jersey Central Power and Light Company from the sale of economy energy to the Public Service Electric and Gas Company was accounted for on the books of the Jersey Central Power and Light Company as a credit to "production expense".

Counsel for the Commission as well as Counsel for the Respondent and Counsel for the Intervenor agree that this statement may be eliminated from the record and that no reliance will be placed thereon by any party to this proceeding.

MR. PAXSON: That is perfectly satisfactory to me, Mr. Examiner.

MR. AUTENRIETH: That is agreed to.

EXAMINER SPENCER: Gentlemen, we will adjourn at this time until 10:00 o'clock tomorrow morning.

(Whereupon, at 4:35 o'clock p. m., an adjournment was taken until Thursday, October 6, 1938, at 10:00 o'clock a. m.)

Washington, D. C.
Thursday, October 6, 1938.

The hearing in the above-entitled matter was resumed, pursuant to adjournment, in Room 1201 Hurley-Wright

Building, 1800 Pennsylvania Avenue, N. W., Washington, D. C., at 10:00 o'clock a. m.

Before:
Carroll B. Spencer, Trial Examiner.

Appearances:
As heretofore noted.

PROCEEDINGS

EXAMINER SPENCER: Gentlemen, the hearing will now be resumed.

MR. PAXSON: Mr. Examiner, I would like to have it noted that Judge Autenrieth, who has put in his appearance heretofore for Jersey Central Power and Light Company, has been unable to appear here today. He had no anticipation that this hearing would continue to this great length, and he had some important professional engagements which necessitate his absence. Accordingly, Mr. Examiner, he has asked me to carry on for him. So at this time I want my appearance noted not only for New Jersey Power and Light Company, as it is already noted, but also for the Jersey Central Power and Light Company, so that I can carry on in Judge Autenrieth's absence.

EXAMINER SPENCER: Very well. Judge Autenrieth has already explained to me the necessity for his being away today and I told him that it would be satisfactory to the Examiner.

Let the record show that Mr. Paxson will also act for the Jersey Central Power and Light Company.

You may proceed, Mr. McAllister.

EDGAR DOW SIBLEY

resumed the witness stand and, having been previously sworn, testified as follows:

Direct Examination

BY MR. McALLISTER:

Q. Mr. Sibley, I believe you stated you had made certain investigations of interconnections and operations of the Jersey Central Power and Light Company, Staten Island Edison Corporation, Public Service Electric and Gas Company, and possibly others.

A. Yes.

Q. When did you make these investigations?

A. In the case of Staten Island Edison Corporation, I have known about that company for approximately ten years.

Q. What I am referring to particularly are the investigations you said you made with respect to these particular matters about which you have testified.

A. They have all been made recently.

Q. Can you state the date on which you began your investigation?

A. I believe September 12, 1938 was the first time I had ever entered the Perth Amboy substation known as Mechanic Street substation of the Public Service Electric and Gas Company.

I visited the power station of the Jersey Central Power and Light Company approximately two years or three years ago, and again on the 15th of September, 1938. I believe I was there also on the 16th of September.

As to the Staten Island Edison Corporation, I have been in that power house and visited the interconnections several times in the last nine years, I would say.

Q. In the course of this investigation what did you do in those plants or in that plant during the periods you have indicated here?

A. As to the Staten Island Edison Corporation, I visited the office where the records, and so on, are kept in the service building just across the street from the power station.

Q. At Livingston?

A. At Livingston, yes, sir.

Q. What was the latest date upon which your investigation continued?

A. On Saturday afternoon, September 24th, I went over the lines that are involved in the New Lisbon-Wrightstown power supply, and on Saturday, October first, 1938, I returned to the office of the Public Service Electric and Gas Company in Perth Amboy to obtain some additional data.

Q. Who instructed you to make this investigation; Mr. Sibley?

A. I was requested to make this investigation by Mr. Paxson.

Q. No other instructions came to you?

A. No, sir.

Q. You received no request or instruction from the New Jersey Power and Light Company?

MR. PAXSON: If the Commission please, I represent the New Jersey Power and Light Company as their attorney.

THE WITNESS: No, sir. The only one who asked me to go over there was a request by Mr. Paxson.

BY MR. McALLISTER:

Q. To whom do you report as your immediate superior?

A. E. M. Gilbert.

Q. You report to Mr. E. M. Gilbert as your immediate superior?

A. Yes, sir.

Q. I believe you stated you are a vice-president of the E. M. Gilbert Engineering Corporation.

A. That is correct.

Q. He gave you no instructions as to the investigation which you made?

A. I beg your pardon. I did not understand that question.

Q. E. M. Gilbert gave you no instructions as to the investigation that you were to make?

A. No, sir.

Q. Did your investigations involve any investigation of the New Jersey Power and Light Company at this time?

A. No, sir.

Q. At the time you inspected the plant of the Jersey Central Power and Light Company I believe you said it was within the last two years prior to this investigation. Is that correct?

A. Yes, sir. I had been in it, I would say, possibly two years ago.

Q. And is the operation today substantially what it was then?

A. Well, I cannot remember that. I didn't notice anything different.

Q. No changes were directed particularly to your attention?

A. No, sir.

Q. What would you say with respect to the connection between the Jersey Central Power and Light Company and the Public Service Electric and Gas Company, between South Amboy and Mechanic Street? Has that remained substantially the same over this period of time?

A. I never saw the Public Service Electric and Gas Company's facilities until the 12th of last month, I believe it was.

Q. The records which you examined as to flow of energy and interchange, facilities utilized to accomplish

that interchange, and other relevant matters that you examined did not indicate that there was any change in that connection over that period of time?

A. The only exception to that was that I asked them. I sketched a diagram of the outdoor bus, and then I said, "Don't you have a drawing that you can give me?", and he said he had a drawing there that was out of date; but he got me another one. So I took the early drawing there and started away with it. It did not include the bus oil switch. Afterwards they sent me a drawing that had the oil circuit breaker in it.

Q. That was at Mechanic Street?

A. Yes.

Q. Going down to the other end of the connection at Jersey Central Power and Light Company, did they indicate any change in that connection or in the methods of operation over the period of time since you had been there before up until this time?

A. When I went there before I went just as a matter of interest. I have been more or less in all of the power stations in the east. I sort of enjoy seeing what the other engineers do. The only outstanding thing in that station that I remember was the outdoor bus construction. As to the actual operation when I was there two years ago I cannot remember or testify to one way or the other.

Q. But, as I understood your testimony on direct examination in response to questions propounded to you, you did say that you had made an investigation of the flow of energy and the interconnection over the period from August 26, 1935.

A. Yes; I made that investigation from the information which I obtained from the records in the load dispatcher's office of the Jersey Central Power and Light Company located in the South Amboy generating station.

Q. In your examination of those records was there any indication of any change in the methods of operation over that period of time?

A. I do not recall any notation. Anyway, I didn't see any notations on the log sheets which I examined. They all had a history of what had happened over the lines in the way of flow of power.

Q. Then you assumed that the conditions during that period of time were substantially the same?

A. So far as I know they were the same.

Q. So far as you are concerned, Mr. Sibley, the condition was the same? You made no effort to determine that point definitely with the thought in mind that there might have been a change?

A. No; I did not.

Q. Would you say the situation was substantially the same so far as transmission lines are concerned from Mechanic Street substation to the Atlantic substation of Staten Island Edison Corporation?

A. Well, as stated previously, the first time I ever saw the facilities of the Public Service Electric and Gas Company in the vicinity of Mechanic Street was on the 12th day of October, 1938.

BY MR. PAXSON:

Q. Don't you mean the 12th day of September? You testified before that it was September.

A. Yes; I mean September 12, 1938.

BY MR. McALLISTER:

Q. But in studying the records as to what had transpired over that period of time from August, 1935 you would be interested, would you not, in whether there had been any material change in the facilities or the methods of operation?

A. Well, I took the office of the Public Service Electric and Gas Company. They made available to me certain records, and I took data from these records and attempted to make certain calculations from them. I did not inquire as to how they operate now or how they operated then or at any other time.

Q. Then it would be a reasonable conclusion, would it, that you assumed the operation was substantially the same?

A. It may have been.

Q. What was your assumption?

A. Well, I used the records to attempt to find out and make calculations as if the facilities were the same as they were on the day when I had seen them.

MR. PAXSON: Possibly if Mr. McAllister would define operation more specifically Mr. Sibley could answer the question more profitably.

MR. McALLISTER: We will get along all right, Mr. Paxson.

EXAMINER SPENCER: Proceed, please.

BY MR. McALLISTER:

Q. You found no evidence of any change in operation?

A. I did not go thoroughly into the operation.

Q. But as far as you did go into it you found no change in operation?

A. I must admit I did not go into the operation very thoroughly.

Q. Then, if you make use over a period of time of data and make comparisons between the information relating to one period as compared with the same records as to another period of time, you must assume that other conditions remain constant?

A. Well, I did assume that.

Q. You did assume that?

A. Yes.

Q. And you found nothing to the contrary in the records?

A. Found what?

Q. You found no indications—

MR. PAXSON: That is objected to. The records speak for themselves. I ask for an offer. I decline to

draw legal conclusions if the thing exists today it is presumed to continue for many years or possibly some years since. I object to these questions because this witness cannot testify to legal conclusions. Probably he would make a lot of assumptions based upon his very general inquiry, which I think is rather impertinent—by which I mean it is not material to the issues. I object to his general line unless he fixes it more definitely and specifically. There has been a great deal of specific testimony in this case about what the record show. When a man says he examined the records for some years you cannot generalize so as to reach any definite conclusions of that character.

Unless he can show exactly what his purpose is in this line of inquiry I object to it.

EXAMINER SPENCER: The witness has testified that he assumed operation conditions were the same.

MR. PAXSON: I would like to have him define what he means in his question. An engineer may have one idea of operation conditions and he may have another idea. I don't know what he is talking about; and I don't suppose the witness does.

EXAMINER SPENCER: For the purpose of the record I myself would like to know whether when you refer to operating conditions it is the condition of the line or the actual operating management of the company. I assume you refer to operating conditions as meaning particularly the facilities. Is that true, Mr. McAllister?

MR. McALLISTER: I have not limited my question.

EXAMINER SPENCER: I know you have not, and you have not explained it. I want to find out.

MR. McALLISTER: I made it very, very clear as to what this witness did in his investigation with respect to operation which relate to his testimony, and he stated certain conditions follow from the examination of these records. I merely wanted him to state, as he did state, and it is satisfactory as the record stands, that he found no change.

EXAMINER SPENCER: All right.

MR. McALLISTER: There is absolutely no question as to what the record shows and what the witness meant by his answer.

MR. PAXSON: As to what? No change as to what? That is what I want to find out about.

BY EXAMINER SPENCER:

Q. When you say no change in operating conditions do you mean the facilities or the operating management of the company, or both?

A. Your Honor, I was there only once or twice. To compare that to what it had been at some other time, of course, I am unable to do it. In examining records I took data from the records and I assumed that the meters that were utilized in supplying the indications from which these indications were recorded on the log sheets had remained the same meters over the period. I assumed that was true with all the instruments on the switchboard. But so far as actually knowing about the management or other things, I have no way of comparing that.

Q. In compiling your data did you assume the electric energy was flowing the same way all of this time?

A. I assumed the physical wires were the same. Of course, the flow of energy varies at different times under different conditions.

Q. All right. You may proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. Mr. Sibley, you testified regarding the interconnection at Wrightstown-New Lisbon and described the connection as of the date you made your investigation, did you?

A. I did.

Q. Did you assume that that same condition existed over the period in the past, let us say from approximately September 1, 1935 down to date?

A. I made no effort to determine how long the existing connections were in their present form.

Q. Did you find any evidence of any changes?

A. In fact, I went over there without any representatives of the Public Service Electric and Gas Company or of the Jersey Central Power and Light Company. I went over with one of our men and I had no one to explain any of those circuits to me and I did not have the advantage of anyone to ask about these things. I just recorded things the way I found them.

Q. But so far as the interconnection at Mechanic Street with the Jersey Central Power and Light Company and the interconnection between Mechanic Street and Atlantic substation are concerned, the records which you examined indicated no change in the operation of those facilities or changes in the facilities themselves of any material consequence during the period of time involved in the study which you said you made?

MR. PAXSON: That is objected to. He testified that he examined the log sheets and records. I take it that log sheets do not show whether or not there have been any changes in facilities. They have a specific purpose which Mr. Sibley has described. Whether they show operations, unless he defines what he means by operation, I also object to.

EXAMINER SPENCER: The objection is overruled.

You may proceed, Mr. McAllister.

MR. PAXSON: An exception, please.

EXAMINER SPENCER: An exception is noted.

BY MR. McALLISTER:

Q. Will you please proceed, Mr. Sibley?

A. I don't know how to answer the question other than in the way I have answered it. I am trying to answer what you want to know.

Q. I appreciate that. We would have concluded this examination long ago if it were not for the interruptions.

EXAMINER SPENCER: You may proceed.

BY MR. McALLISTER:

Q. But will you just answer the question as I have put it to you now, and then perhaps we can drop the matter, if it is complete as to what you did?

A. So far as I know, the electrical instruments on the switchboard are the same electrical instruments that were utilized to record all of the records which I used in making this determination. Concerning the outdoor switching equipment, I have no knowledge of any change there except the addition of an oil circuit breaker in the bus bars.

Q. As concerns the transmission lines, Mr. Sibley, to your knowledge were there any changes with respect to those?

MR. PAXSON: That is objected to unless he defines what he means by transmission lines. The word "transmission" is quite important in this inquiry, if Your Honor please, because it is stated in the law, and certain legal conclusions flow therefrom. I do not care to have it used generally and have any deductions drawn.

EXAMINER SPENCER: Will you be more specific in the question, Mr. McAllister?

BY MR. McALLISTER:

Q. I am referring to the transmission lines, Mr. Sibley, which you stated were utilized in transmitting energy from Mechanic Street substation to Atlantic Substation of the Staten Island Edison Corporation and the transmission lines and facilities utilized in the transmission of electric energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company at Mechanic Street.

A. So far as I know there has been no change in those feeders.

Q. When you use the term feeder, you are referring to the transmission lines, the circuits between the substations?

A. I am referring to the cable interconnection in the case of the Staten Island Edison Corporation and the cable as far as the south bank of the Raritan River and the double circuit open line to the substation in the yard of the Jersey Central Power and Light Company at South Amboy.

Q. When you say open station, Mr. Sibley, you mean the substation outside the generating plant? Is that true?

A. I mean to say the open wire line as distinguished from a cable.

Q. The pole line?

A. Yes.

Q. You have referred to the connection between Mechanic Street substation and Atlantic Substation of the Staten Island Edison Corporation variously as an interconnected line and circuit, and I am asking you whether you intended to indicate by that testimony that it is not a transmission line?

A. I did not attempt to differentiate between a transmission line and a distribution line. That particular line is a tie line. In fact, cable lines we usually speak of as circuits and we often refer to them as feeders, and we have

all kinds of names. I have been trying to be very specific here by referring to them as cables or overhead wires or something.

Q. Considering the various elements that go to make up the tie, it is used solely and only for the transmission of electric energy between those two substations?

A. Oh, surely.

Q. There is no question of there being any customers in that area?

A. As I understand it, Mr. McAllister—

Q. Between the two stations.

A. As I understand it, as to this length of cable from Atlantic substation to Mechanic Street, there are no customers that I know of in that cable section.

Q. It performs exactly the same function as would be accomplished if the line were carried overhead the entire distance?

A. It is a conductor for conveying electrical energy. It is a path or conveyance of electrical energy.

Q. Will you just answer the question as I put it, please?

A. What is the question?

Q. It performs exactly the same function as would be accomplished if the line were carried overhead the entire distance?

A. Yes.

Q. And the same thing holds true with respect to the interconnection between Mechanic Street substation and the substation at the plant of the Jersey Central Power and Light Company at South Amboy?

A. An overhead conductor would perform the same function as this cable performs.

Q. And there are no customers—if that makes any difference—on the line from the substation of the Jersey Central Power and Light Company at South Amboy to

the Mechanic Street substation of the Public Service Electric and Gas Company at Perth Amboy?

A. That is true.

Q. Mr. Sibley, referring to exhibit No. 8, page 692 of the record this question was asked you:

"Q. Does this graph show at the time of this emergency on the Staten Island Edison Corporation lines that there was any increase in the flow of power from Jersey Central Power and Light Company to Public Service Electric and Gas Company?"

And your answer was:

"A. None that I can see."

Isn't that true?

A. I believe that is what I said. I haven't the minutes here, but it is the spirit of it.

Q. That is the substance of what you intended to say?

A. Yes.

Q. I think I read it correctly.

Will you please refer to that chart and state whether or not it is a fact that the lower graph, showing the movement of electric energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company, is on an entirely different scale than the upper part of the graph, showing the movement of energy between Public Service Electric and Gas Company and Staten Island Edison Corporation?

A. That is true.

Q. What is the relative difference in the scale upon which these two graphs are constructed?

A. Three to one.

Q. In other words, to make them directly comparable line for line it would be necessary to increase the size of the one colored in blue to three times its present size without extending the length of the graph?

A. Yes. Every ordinate in that lower scale would be increased.

Q. As a matter of fact, looking at the chart as a high bump colored in blue just after two-thirty a. m., as you show if there, it represents a flow of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company of something in excess of 10,000 kilowatts. Isn't that correct?

A. Yes. That is what that graph shows.

Q. Going directly above it and looking at the large block in orange showing the flow of energy from Public Service Electric and Gas Company to Staten Island Edison Corporation, while that line appears to be very much longer, Mr. Sibley, it represents only the flow of about 8200kw. Isn't that right?

A. It is in that neighborhood.

Q. Or 8400?

A. In that neighborhood. Each division represents four.

Q. Then, it is 8400?

A. Yes.

Q. So that the short line in blue has a greater value than the long line in orange.

A. The distance the graph is above the zero line; yes.

Q. What I stated is true, that the value of the line or the height of the line for the area I described as being colored in orange, although to the eye appearing very much longer than that in blue, nevertheless it shows a flow of only 8400 kilowatts whereas the one in blue shows something over 10,000 at that particular time?

A. Yes; that is right. I have no control over these graphs. These were just printed from the automatic machine.

Q. If the lower graph were constructed in such a fashion that it would be on the same scale as the upper graph, it would be more readily compared with the part of the graph representing the flow of energy from Public

Service Electric and Gas Company to Staten Island Edison Corporation?

A. That is true.

Q. In your study of the movement of electric energy during that time from Jersey Central Power and Light Company to Public Service Electric and Gas Company did you obtain the operating records of the Jersey Central Power and Light Company at their South Amboy plant for this period to determine just what transpired in the plant that indicated the manner of operation?

A. All I took from those sheets were the instrument readings.

Q. All you took into consideration were the instrument readings?

A. I don't believe there was any other operating information that was noted on those sheets.

Q. If there was, Mr. Sibley, you paid no particular attention to it? I mean if there was anything on there which indicated any violent or material change in the methods of operation. You would have been interested in it and you would have considered it?

A. Yes. It was not called to my attention, at any rate, I did not notice it.

Q. It has just been called to my attention that the graph itself, or the two graphs which you show on this exhibit, were taken from instruments in the Mechanic Street substation?

A. Yes; that is right.

Q. Now, I will have to change my other question a little bit. I suppose your answer will be the same. But did you obtain from the operating records of the Jersey Central Power and Light Company at the South Amboy plant any records or information indicating the methods of operation or what transpired in that plant to explain the variations in the flow of energy from Jersey Central Power and Light Company to Public Service Electric

and Gas Company during the period of time shown on your chart?

A. No, sir. I made no inquiry from the Jersey Central Power and Light Company dispatchers concerning any variation in the flow of electrical energy as shown on Respondent's Exhibit No. 8.

Q. In response to a question that was put to you on page 692 of the record, the question being: "Does not this graph also show that the increase in power taken by Staten Island Edison Corporation at this time from Public Service Electric and Gas Company result in increased generation on the system of the Public Service Electric and Gas Company", and then I asked to have the question read, there being some discussion, and then you answered:

"It shows that".

In response to that question and answer, Mr. Sibley, will you please refer to the chart and state whether or not the answer which you made to that question represents correctly your answer?

A. Before being able to obtain records from the graphic watt meter showing the ebb and flow of power between Staten Island Edison Corporation and Public Service Electric and Gas Company and the graphic watt meter showing the ebb and flow of energy between the Jersey Central Power and Light Company and the Public Service Electric and Gas Company it was my opinion that any change in power on the Staten Island Edison Corporation would not affect the flow of power from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company.

When I was able to obtain these records and look at them they bore out what I believed they would, and the inspection of this blue chart by me shows that there is no decided trend change at the particular time when the Staten Island Edison Corporation had an emergency and drew an unusually large amount of emergency power.

Q. The force of what you have said is, Mr. Sibley, that if the generators of Jersey Central Power and Light Company are sufficiently controlled through manual operation, then the result of the draw of Staten Island Edison Corporation upon the substation at Mechanic Street will not be reflected in the flow of energy from Jersey Central Power and Light Company to Mechanic Street? Isn't that true?

A. No, that is not true. I don't think that any draft of power by the Staten Island Edison Corporation from the Public Service Electric and Gas Company will either increase or decrease the amount of energy supplied from Jersey Central Power and Light Company to Public Service Electric and Gas Company.

Q. When this load from Staten Island Edison Corporation comes on to Mechanic Street substation unannounced, if we so assume, what happens to the generators supplying energy to the Mechanic Street substation?

MR. PAXSON: Whose generators?

MR. McALLISTER: Those supplying energy to Mechanic Street substation.

THE WITNESS: I believe that it would in this case.

BY MR. McALLISTER:

Q. I want you to relate your answer to the question. If you want the question repeated, it is all right with me. Do you?

A. Yes, if you please.

EXAMINER SPENCER: Will the reporter read the question, please?

(The question was then read.)

THE WITNESS: They supply the power required by Staten Island Edison Corporation.

BY MR. McALLISTER:

Q. They pick up the additional load?

A. That is right.

Q. What does this chart show as being one of the sources of power to Mechanic Street substation at the time the emergency load on chart No. 8 was required by Staten Island Edison Corporation at about 2:30 a. m. on August 13, 1936, Mr. Sibley?

A. Well—

Q. Now, just answer the question. There is only one generating source shown as supplying energy to Mechanic Street substation at that time so far as this chart is concerned, and I want you to name what that is.

MR. PAXSON: I object to that statement by counsel unless he brings out that this chart shows only one source of generation.

EXAMINER SPENCER: Counsel made a statement.

MR. McALLISTER: The question is perfectly clear, Mr. Examiner, and I insist upon an opportunity to pursue my questioning through without interruption.

EXAMINER SPENCER: I think counsel has a right to object to the question. Your question presupposes that there is only one generator supplying energy. It may have been testified to. I don't recall that there is any testimony on that point. If not, I think counsel for the Commission should establish that fact.

MR. McALLISTER: I said as shown on this chart. I have limited my question sufficiently.

EXAMINER SPENCER: Does this chart show the source of generation, Mr. Sibley?

MR. McALLISTER: I said one source of power flowing to Mechanic Street substation for that period which I have named—2:30 a. m., during the period of that emergency shown there in red. There is some little red over on this side of the exhibit (indicating); but the large block I am referring to.

THE WITNESS: The large draft of power, roughly at 2:25, showed no effect. The draft of power about 2:28 showed no appreciable effect.

Approximately three minutes after, or about 2:30, the flow from Jersey Central Power and Light Company was higher than it had been for twenty minutes.

The large draft of power at approximately 3:12 shows practically no effect.

MR. McALLISTER: Mr. Examiner, I just want to interrupt this long explanation because it is not responsive to the question. It is not in any way responsive to the question that I asked.

EXAMINER SPENCER: I agree with you about that. And we are going to get a response to the question, if he can answer that question.

Have you finished, Mr. Sibley?

THE WITNESS: I want to answer the question the way it wants to be answered.

EXAMINER SPENCER: You may proceed.

THE WITNESS: The demand by Staten Island Edison Corporation increased from 6,000 kilowatts to approximately 8,000 kilowatts at 2:33. At 2:33 on the lower chart there is a momentary increase from approximately 5,000 kilowatts to 7,500 kilowatts.

At the time Jersey Central Power and Light Company reached the maximum during this interval a trifle over 10,000 kilowatts, Staten Island Edison Cor-

poration was taking at that particular time about 8,300 kilowatts.

BY MR. McALLISTER:

Q. Have you finished your answer?

A. I believe I have completed the answer.

EXAMINER SPENCER: Now, Mr. Sibley—

MR. McALLISTER: Let me get at it another way, if you will, Mr. Examiner.

EXAMINER SPENCER: Let me get an answer to my question. From what source did that energy come?

THE WITNESS: I believe it came from generators on the Public Service Electric and Gas Company.

EXAMINER SPENCER: You may proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. You show on that chart energy flowing from Jersey Central Power and Light Company to Mechanic Street substation.

A. That is correct.

Q. In various quantities.

A. That is correct.

Q. That was one of the sources of supply of electric energy to Mechanic Street substation at the time this emergency demand came on Mechanic Street substation from Staten Island Edison Corporation. Isn't that true?

A. It may or it may not be so. From an inspection of the chart by me I do not believe the chart shows any evidence of that.

Q. Well, according to your own chart, didn't that energy from Jersey Central Power and Light Company flow from Jersey Central Power and Light Company to Mechanic Street substation. I mean didn't that energy

from Jersey Central Power and Light Company, according to your own chart, continue to flow from Jersey Central Power and Light Company to Mechanic Street substation?

A. It continued; but it was the same trend that had been flowing before that time. In fact, the trend became gradually less.

Q. But the flow of energy at the time the emergency load came on from Staten Island Edison Corporation from Jersey Central Power and Light Company to Mechanic Street substation continued? Isn't that true?

A. Well, it continued. I do not understand—

Q. I mean that at no time did the flow of energy from Jersey Central Power and Light Company to Mechanic street substation cease.

A. That is correct.

Q. Prior to the time this load came on Jersey Central Power and Light Company was supplying energy to Mechanic Street substation?

A. That is correct.

Q. You stated that when that load came on to Mechanic Street substation unannounced, as we assumed, that that load would divide among the generators which at that time were supplying energy to the Mechanic Street substation? Isn't that right?

A. As a general statement I think that is true, although I do not think the chart has demonstrated it at all that the generators of Jersey Central Power and Light Company contributed anything toward that.

Q. You said that if there was no manual control on the generators at the time this load was assumed to come on that load would be divided between the generators that were then supplying the load to Mechanic Street. Isn't that so?

A. As a general statement that is true.

Q. But isn't it absolutely true if there is no manual control of the generator?

A. Well, not exactly.

Q. To what extent isn't it exact?

A. To the extent that the characteristics of steam turbines differ among themselves.

Q. You mean—

A. The load characteristics.

Q. The load characteristics?

A. Yes.

Q. And the exact relation of the governors one to the other?

A. The regulating qualities of the units.

Q. That may affect the quantity, the percentage, if you want to use that term, or the basis upon which the load divides between generators, but without manual control all of the generators that at the time this sudden load comes on there will each respond to pick up the sudden demand? Isn't that true?

A. There is a tendency that way; yes.

Q. It is more than a tendency, isn't it? It is an absolute rule?

A. These indications are tied with this large system of the Public Service Electric and Gas Company.

Q. Now, will you just answer the question, please? And then you may explain it. Just answer the question. I want an answer to that question.

EXAMINER SPENCER: Will the Reporter read the question?

(The question was then read by the Reporter.)

MR. McALLISTER: Now, that question is one that can be answered,

THE WITNESS: The reason that a unit picks up—

BY MR. McALLISTER:

Q. Will you just answer the question? And then you may explain it.

A. Now let's get this thing right. Let me hear the question again, please.

(The question was then read by the Reporter.)

THE WITNESS: I would say that is generally true.

EXAMINER SPENCER: Gentlemen, at this time we will take a five minute recess.

(Thereupon, a short recess was taken, after which the following occurred.)

MR. PAXSON: Now, you can explain your answer.

MR. McALLISTER: I don't think he has any explanation.

EXAMINER SPENCER: Off the record.

(Discussion off the record.)

EXAMINER SPENCER: On the record. We will recess now for five minutes.

(Whereupon a short recess was had, at the conclusion of which the following occurred.)

EXAMINER SPENCER: The hearing will be resumed. You may proceed, Mr. McAllister.

BY MR. PAXSON:

Q. Have you any explanation, Mr. Sibley, or do you wish to add anything further?

A. Well, my answer to Mr. McAllister's question is purely theoretical. The only thing, that has been stated many times here, to change the power which an electrical generator will deliver is the amount of steam which is supplied to the turbine. An 8 or 10 thousand kilowatt draft by Staten Island Edison Corporation on the System of the Public Service Electric and Gas Company is small in comparison to their other loads. It is probably equivalent to any other of their large customers, and my opinion

would be that the drop in frequency there would be unnoticeable. I didn't examine the frequency chart for this particular time. If the examination of the frequency chart shows a continual ripple around the constant point—

BY MR. McALLISTER:

Q. (interposing) Prior to the draft on Mechanic Street by Staten Island Edison Corporation for this large block of electrical energy you stated very positively that Jersey Central Power and Light Company was supplying energy to Mechanic Street Substation, did you not?

A. Oh, yes, that is true.

Q. You also stated when that load came on to Mechanic Street it would divide among the generators that were then supplying energy to Mechanic Street Substation, isn't that right?

A. That is theoretically so.

Q. Isn't it an absolute fact?

A. I don't think so.

Q. In other words, am I to understand you to say that a load coming onto that substation will not divide among the generators that are supplying energy to that point if no manual control is exercised on the governors of those generators?

A. I don't think that is exactly true.

Q. Just tell me to the extent it is not true.

A. It would not be true. It depends upon the load curve. The load that a generator—impounding the steam that is admitted to the turbine is a function of the governor and the variation in speed in this case is very slight, and if steam turbines have a different relation between the frequency and the speed and the amount of steam they take, I think that would influence this answer.

Q. Although the generators that are supplying energy at that time are operated in synchronism and operating in parallel, isn't that true?

A. That is true.

Q. When that load comes on, to follow through the physical process, when that load comes on, it has a tendency to slow down the generators supplying that load, isn't that true

A. All of them.

Q. Without exception?

A. That is correct.

Q. When the generator slows down what happens to the governor?

A. That is where I say there is a difference. What happens to one governor, or what happens to the amount of steam which that governor would admit to the 30,000 kilowatt turbine would be different to the action of a larger turbine or smaller turbine.

Q. True, but in this operation one has a governor that is designed to manage the supply of steam to that turbo generator, isn't that true? You have a different governor on a smaller turbine designed to fit the requirements of that turbo generator, isn't that true?

A. As near as it can be adjusted.

Q. Without manual control those generators operating in parallel, supplying the load, will all respond when a sudden load such as you have there comes on to a line to pick up that load, all of them.

A. If the governors are sensitive to that amount.

Q. Do you know of any governor on these Systems, Staten Island Edison Corporation, Jersey Central Power and Light Company, Public Service Electric and Gas Company, that is not sensitive enough to respond to the load of 10,000 kilowatts?

A. I don't know anything about the governors on any of them.

Q. Do you know any type of governor that is so designed that will not respond to a load of that kind?

A. Well, how much load is there on each unit on

each generator? Here is 10,000 kilowatts divided among a lot of generators.

Q. How many generators?

A. Well, I don't know how many generators, but I imagine on the Public Service Electric and Gas System they probably had 300,000 KVA in operation at that time.

Q. At two o'clock in the morning?

A. Maybe. I believe their load was testibed to somewhere around half a million.

Q. Maximum annual load. You don't mean to say that came at this time in August at two a. m. in the morning?

A. I am unable to state what generators they have.

Q. Is that an element to take into consideration?

A. It is.

Q. Did you take that into consideration in answering Mr. Paxson yesterday? Did you investigate the facts to enable you to take that into consideration?

A. I don't know what my answer to Mr. Paxson yesterday was.

Q. I will read the question and answer to you:

"Q. Does not this graph also show that the increases in power taken by Staten Island Edison Corporation at this time from Public Service Electric and Gas Company resulted in increased generation on the System of Public Service Electric and Gas Company?"

And your answer was:

"A. It shows that."

A. I believe that is true.

Q. You believe the answer is true?

A. Yes, sir.

Q. Did you take into consideration these elements which you say must be taken into consideration before you can answer the question?

A. Yes, sir.

Q. You had all that information?

A. Well, in general.

Q. What information did you have to take into consideration in general?

A. Well, there are several things I consider. There was a draft of 8,000 kilowatts on what I assumed to be was 300,000 kilowatts running. Now that may be an error, but assuming it is 250,000 there is only a 4 per cent increase of power demand on the System of the Public Service Electric and Gas Company.

Q. You would have to take into consideration in that calculation, would you not, the generator at South Amboy, which is on the line there?

A. Well, we will put that in. I don't know how big that was, but you can put 50 more in so that it would bring it back to 300,000, which I assumed. Now this draft of approximately 8,400 divided by 300,000 is an increase in load of 2.8 per cent. Now I don't believe an increase in load of 2.8 per cent on any given number of turbines will increase the output of each turbine that 2.8 per cent. That is what I based my reply on.

Q. Without regard to the quantity of energy that would be picked up by these various generators that are on the line, would the impedance in the lines between Mechanic Street Substation and the generating plants have anything to do with the quantity that would be picked up?

A. No, sir.

Q. Nothing whatever?

A. No.

Q. The plant in Philadelphia, if it was on the line, the Philadelphia Electric Company was on the line and it was tied in all the way through, the plant in Philadelphia would pick up the same quantity as the plant at South Amboy?

A. Well, if you are going to include Philadelphia and

everything tied with it this load is so infinitesimal it is indeterminate.

Q. Would it divide all the way down there?

A. Theoretically I suppose it would.

Q. Actually?

A. No, I don't believe so.

Q. What defines the limits over which it will divide?

A. I don't think you can tell. You have here, just for argument's sake, taking a draft of 10,000 kilowatts anyhow, connected to the whole interconnected system there is in the neighborhood of two and one-half million kilowatts, well 10,000 kilowatts into two and one-half million is a very small percentage. It is .4 of 1 per cent. Now these machines aren't built to govern within .4 of 1 per cent.

Q. Well, as a matter of fact when this 10,000 kilowatts come on there it just goes wandering, does it, without any generator being able to pick it up?

A. I don't believe there would be any possible way of determining which generators actually pick up an increase of .4 of 1 per cent.

Q. Let's go back to Mechanic Street. They have a certain load at Mechanic Street that is being supplied from certain sources when this emergency energy comes on, isn't that true?

A. Yes.

Q. One of those sources of energy was Jersey Central Power and Light Company?

A. Yes.

Q. Now I am asking you if we are to understand you as saying that when that demand of Staten Island Edison Corporation came on to Mechanic Street Substation, as it did, as shown by your graph, that without manual control at South Amboy, that load coming onto Mechanic Street Substation unannounced, as we assumed, would not affect the generators in operation at that time in the

South Amboy plant of Jersey Central Power and Light Company?

A. I believe that is true from a practical standpoint.

Q. It would affect it, is that what you say?

A. No, I believe it would not affect it. The only thing that can change the energy flowing between the Jersey Central and the Public Service is the amount of steam that is admitted by the governor to the steam turbine.

Q. Through the governor or manually?

A. I beg your pardon?

Q. Either through the governor or manually.

A. That is correct.

Q. Well, eliminate the manual control.

A. All right, sir. Now automatically that is regulated by a change in the turbine speed.

Q. When the load comes on it slows the speed and that automatically pushes up the governor and permits an inflow of steam, isn't that true?

A. Now, what I am attempting to say here, I don't believe this comparatively slight increase in load actually changes the speed of the System.

Q. And it would not, therefore, be reflected in any way on the speed of any generator at all?

A. As a practical matter, I don't believe it would.

Q. A load of 8,400 kilowatts would not be detected?

A. .4 of 1 per cent.

Q. You said that .4 of 1 per cent was not the proper amount because you said it would not divide, as a practical matter, back into that range of surmise that was brought into the picture.

I am asking you as a practical matter, leaving percentages out, and your answer is, as I understand it, that the South Amboy plant in your opinion as an electrical engineer familiar with the operation of these plants, that

in your opinion that load would not affect the quantity of energy generated by the plant at South Amboy.

A. That is my opinion, and I believe Respondent's Exhibit No. 8 will show it.

Q. Well, what load would be required before there would be any change in the operation of the plant at South Amboy?

A. I don't know, but it would be in considerable excess of these cable tie lines.

Q. That generator at South Amboy at no time would be affected by a change in load of 10,000 kilowatts?

A. On Public Service Electric and Gas Company?

Q. On Public Service Electric and Gas Company, no matter where it came on.

A. I don't think it would. We are dealing with large quantities here.

Q. Would 25,000 affect it? 25,000 kilowatts as a sudden load on Public Service Electric and Gas Company, would that affect the speed of the generators?

A. I don't think so.

Q. You don't think so?

A. No.

Q. All right. Now yesterday, or the day before when you were on the stand, you made some reference to ammeters on the transformer bank at Mechanic Street Substation, did you not?

A. I believe I did.

Q. You produced a dial or the face from one of the dials of the ammeter which you state you had taken from a substation of the Metropolitan Edison Company, is that true?

A. That dial does not represent the ammeter on the transformer.

Q. It does not?

A. No, sir.

Q. You didn't so state on the record?

A. If I did I didn't intend to so state. That is the ammeter on the cables going to supply the General Cable Company.

Q. The record is particularly silent in that regard and I assume when you say a like situation prevailed there you were referring to the same kind of ammeter, but it isn't. We can forget that. As a matter of fact it is not the same ammeter.

A. It is the same kind of instrument.

Q. What does the dial show?

A. The dial is bigger than that.

Q. What does it show as a range?

A. I believe from zero to 2,000.

Q. Here was the question:

"Q. And the same criticism which applies to General Cable applies to all these other readings which are expressed in amperes?"

And your response was:

"A. It applies to the ammeters on the transformers, readings of power for local disfribution."

MR. PAXSON: What page is that?

MR. McALLISTER: That is on page 705.

BY MR. McALLISTER:

Q. What are the numerals that appear on that dial?

A. I believe from zero to 2,000 amperes.

Q. Then, what you said with respect to this dial did not apply to that?

A. I believe it applies to it to a certain degree. The point that I criticised about these instruments was,—

Q. (interposing) Let us,—

MR. PAXSON: (interposing) Let him explain the answer.

MR. McALLISTER: I am.

MR. PAXSON: You don't want him to.

EXAMINER SPENCER: Let the witness explain.

MR. McALLISTER: I want him to answer the question.

MR. PAXSON: He is going to explain. He has answered the question categorically. Now he is going to explain.

MR. McALLISTER: Mr. Examiner, I ask you to straighten out on the record as to the question before the witness and I want an answer.

MR. PAXSON: He answered and then started to explain, and you cut him off.

EXAMINER SPENCER: Read the question.

(Whereupon the reporter read the pending question and answer thereto as recorded.)

EXAMINER SPENCER: You may proceed.

THE WITNESS: The pointer of the instrument which moves proportionately to the amperes in it travels over a very limited range. I found frequent readings entered on the log sheets where 10 amperes had been approximated on an ammeter where the lowest mark is 50.

BY MR. McALLISTER:

Q. What lines were those?

A. Those lines were the two cable circuits going to the General Cable Company—

Q. (interposing) Now with respect—

MR. PAXSON: (interposing) Let him finish. He has got a right to finish but you apparently want to stop him again.

MR. McALLISTER: No.

MR. PAXSON: You want to stop him.

EXAMINER SPENCER: You may proceed, Mr. Sibley.

THE WITNESS: In fact I found on one day 258 notations on the log sheet where the readings were of the same amount. They were all noted as 10 amperes on this instrument.

BY MR. McALLISTER:

Q. Which one is that again? What line was it on?

A. That is on the 6 ammeters located on the two circuits running to supply the General Cable Company.

Q. All right, let's go over to the ammeters on the transformer bank, the local load. What readings did you find on those ammeters?

MR. PAXSON: Do you want that exhibit before you, Mr. Sibley, the Commission put in?

MR. McALLISTER: No. No, he doesn't. He is testifying from his own information.

MR. PAXSON: Like Mr. Grimsley did, I recall.

MR. McALLISTER: Yes, absolutely.

MR. PAXSON: Yes.

BY MR. McALLISTER:

Q. Is that information to which you are referring information which you obtained from the record yourself Mr. Sibley?

A. Yes. These are copies of these log sheets in the offices, located in the offices of Public Service Electric and Gas Company.

Q. And this information that was supplied was under your direction?

A. Yes, I was there when all this was taken there.

Q. All right.

A. I guess I will have to refer to notes that I don't have here on the witness stand, but I will say in general the same thing applied, but not to quite such a great extent.

Q. Approximately what were the readings as you observed them on the instruments, or did you observe them on the instruments?

A. No, I didn't observe the readings on the instruments.

Q. You didn't go to the instruments themselves to read and to see whether or not it was possible by looking at that time to determine just what the reading was? I mean those on the transformer banks, that is, that read from zero to 2,000?

A. The lowest division of that ammeter, as I remember was 500 amperes.

Q. Isn't it 200, in fact?

A. The lowest division?

Q. The lowest division.

A. Well, I don't remember.

Q. Well, it was 200 in fact, would that alter your conclusion?

A. Well, 200 amperes is equal to approximately 1,460 KVA. Then that condition would exist on both transformer banks so any reading less than 3,920 KVA on the transformers would be below the lowest division of the scale.

Q. Will you check this calculation of yours, again, Mr. Sibley, and see if you have not made an error when you say that 200, a reading of 200 would require a load of something close to 4,000 KVA?

A. It is substantially that.

Q. Will you read into the record the figures you used in arriving at that computation so that it can be checked?

A. Yes. On the assumption that the voltage of the primary circuit is 4,150 volts, 200 amperes in this circuit, in this three phase circuit is equal to 1,460 KVA. As there are two banks of transformers in parallel, I have combined the power of both banks, and on the assumption that there is 200 amperes in each of the six wires, the KVA would equal approximately 3,920.

MR. PAXSON: Just a suggestion off the record.

EXAMINER SPENCER: Off the record.

(Discussion off the record.)

THE WITNESS: Then, may I correct this?

MR. McALLISTER: You may correct it.

EXAMINER SPENCER: Just a moment, until Mr. Paxson returns.

All right, proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. Will you just correct the record and make whatever explanation you can? It was a mere matter of addition and a difference,—

A. (interposing) Let me get out of this as gracefully as I can. Will you read that?

EXAMINER SPENCER: Read the answer.

(Whereupon the reporter read the answer as recorded.)

THE WITNESS: Now, may I say 2,920.

EXAMINER SPENCER: Let the record so show.

BY MR. McALLISTER:

Q. On your Exhibit No. 6, Mr. Sibley, what is the scale in constructing the lines that you show on that chart to represent kilowatt hours above and below the median

line, marked zero, which I think you assume to be your base line?

A. This graph was plotted on what is known as a millimeter paper, defines in both directions, the small divisions, both vertical and horizontal, are based 1 millimeter apart. The first line above or below the zero line is 1 millimeter. It represents 1/10 of one centimeter, which is shown to indicate 20,000 kilowatt hours. Therefore, the distance between the zero line and the first line, either up or down represents 2,000 kilowatt hours.

Q. Now, looking at the right hand side of that chart, you show a figure zero on the dark line, isn't that true, Mr. Sibley?

A. That is true.

Q. And above and below that you show a figure 20,000, isn't that true?

A. That is true.

Q. Now when you refer to the distance of one millimeter, you are not referring to the line which appears to be midway between the zero line and the 20,000 line, do you?

A. I am not. That is 5 millimeters up.

Q. Five millimeters up? The millimeter line to which you refer appears very indistinct at certain points on this photostat?

A. That is true.

Q. And it is the distance between two of those indistinct lines?

A. It is the distance between the lighter lines.

Q. All right, but let us refer to the heavier lines which we see plainly on the perpendicular line adjacent to the figures to which you have just been referring.

Just above the zero line there is a distinct line midway between the zero line and the 20,000 line. That would represent, if a line was drawn at that level, a flow of energy equal to 10,000 kilowatt hours?

A. That is correct.

Q. So that a millimeter would be 1/5 of the distance between the zero line and that line which would read 10,000. Is that true?

A. That is true.

Q. Now, looking at the dial which you have before you there, will you state for the record how many millimeters the distance is from the reading 50 to the zero reading on the face of that dial?

BY MR. PAXSON:

Q. What are you using to determine that, Mr. Sibley?

A. Well, I will use a millimeter scale.

BY MR. McALLISTER:

Q. Do you have a millimeter scale?

MR. PAXSON: I didn't want to interrupt. I just wondered if you wanted him to try to guess at it or measure it exactly.

MR. McALLISTER: I would rather he measure it exactly.

THE WITNESS: This was the handiest millimeter scale I had, a piece of that paper. I don't know why, did I hurt anything?

BY MR. McALLISTER:

Q. No, you didn't hurt anything.

A. The distance between zero and 50, the space in there at the bottom of the lower arc is 8 millimeters exactly.

Q. And what is it at the top of the arc?

A. The top of the arc is 8.6 millimeters.

Q. Of course the face of the dial, as you have it here, means nothing without it being attached to an instrument, and there being some indicator or needle which would point to the reading at a particular time?

A. That is right.

Q. What is the size of the point of the needle on this instrument expressed in millimeters?

MR. PAXSON: Just a moment, you don't have a needle here, do you? What are you measuring?

MR. McALLISTER: I am glad you raised the point rather than I.

THE WITNESS: Well, of course I don't have the needle here as far as that goes.

BY MR. McALLISTER:

Q. The fineness of the instrument and the kind of needle might have some bearing on the ability to read its location within that area from zero to 5, might it not, Mr. Sibley, zero to 50?

A. Yes, but the indication from zero to 50, I don't believe is proportional to the distance. It is not a straight line function. It will be observed from A. C. ammeter that the divisions reading equal quantities of amperes are always closer together near the lower portion of the dial.

Q. Assuming for the time that the proportion would be in the same relationship as the proportion between other marked numerals is, could you read a needle which was indicating at a point midway between zero and 50 with a degree of accuracy? I mean by that could your eye detect that needle was midway between zero and 50?

A. I probably could. I have had years of experience in meter work. I was in meter work seven or eight years.

Q. I will ask you one other question, Mr. Sibley, in that regard. Although the proportion between various parts of that dial indicated by marked numerals may vary, isn't it a fact that between each marked numeral each subdivision is equal?

A. Oh, no.

Q. The spacing varies between various marked numerals, but the space between any numeral and the next higher numeral is exactly the same?

A. Oh, I don't think so.

Q. Which division between 50 and 100 on up would be a proportionate increase in the distance as you proceed toward 200?

EXAMINER SPENCER: What is the question?

BY MR. McALLISTER:

Q. Which division between 50 and 100 on up would be a proportionate increase in the distance as you proceed toward 200?

A. As a matter of fact, Mr. McAllister, these actual amperes are put through this ammeter and lead pencil marks are noted on it, and after that India ink is applied. The A. C. ammeter is not a perfect device. It doesn't have a good scale like a D. C. ammeter.

Q. Would you provide a scale in somewhat the same manner as you would provide a scale on a thermometer?

A. Yes, somewhat like that. That is the way it is done, under calibration.

Q. Under calibration?

A. Yes, sir.

Q. For each instrument?

A. Yes, sir.

Q. An experienced operator, Mr. Sibley, who has had years of experience in reading those ammeters could read it as well as you could, could he not?

A. Well, if he knew as much as I did about instruments and his eyes were as good, I guess he could.

Q. If he were instructed to read it according to certain definite positions of the needle and he followed those instructions and had good eyesight, why, he would be able to indicate on the chart the information which would be as reasonably accurate as the information which you could record, would he not?

A. Well, when you are working with such a small needle deflection as this is, the width of the line, the judg-

ment of its position and the error due to parallax, throws this thing out, so those readings are not dependable.

Q. As far as the load on the cable going from Mechanic Street is concerned are there any other instruments in that substation which will indicate more accurately what the load is on that line than these instruments?

A. I don't believe so. They told me there was not. I attempted to make these calculations and that was the only instrument available to me, the readings from that instrument were the only ones available to me.

MR. McALLISTER: Mr. Examiner, at this point I would like to interrupt the cross-examination of this witness and put on the stand at this time Mr. Bass of the Public Service Electric and Gas Company. I think he has arrived and I promised to let him get away as quickly as he could. I merely wanted to clear up a question of fact regarding the operation of the Mechanic Street Substation and what is available down there, and what the records show, and it is one of those things over which we do not have as complete control as we might have, but I don't think the questions will take very long. I would like to call him right now if I might be permitted to do that.

Do you have any objection, Mr. Paxson, to my interrupting the cross-examination of this witness?

MR. PAXSON: Well, I certainly don't think it is proper for rebuttal testimony to be interposed.

MR. McALLISTER: Well, it—

MR. PAXSON: (interposing) Just a moment, before respondent's case is all in. If you are through with Mr. Sibley, are you through with Mr. Sibley?

MR. McALLISTER: No, unfortunately, I am not.

MR. PAXSON: You have had witnesses sitting around here for two weeks.

EXAMINER SPENCER: Suppose you proceed with your cross-examination.

MR. PAXSON: I think we ought to finish with Mr. Sibley first. We ought to have some order there.

EXAMINER SPENCER: And interrupt before the redirect?

MR. McALLISTER: It is a question of convenience to another operating company. I didn't want to put him on until I had completed the cross-examination of the witness regarding this matter I wanted to clear up by Mr. Bass.

EXAMINER SPENCER: Is Mr. Bass here?

MR. McALLISTER: Yes, he is. I think I was told a little while ago that he had arrived, and I promised him as nearly as I could promise anybody that I would use every means within my power to permit him to get a train so that he could get back to Elizabeth, New Jersey this afternoon, for the simple reason that he has some important matters that he must attend to, and in order to clear up the record as to what the facts are, he was willing to come down here and state them rather than sending somebody up there.

EXAMINER SPENCER: How long will it take?

MR. McALLISTER: It will not take me over ten or fifteen minutes.

EXAMINER SPENCER: I recognize the fact, Mr. Paxson, you are entitled as attorney for the respondent to have the case put on in regular order and have this cross-examination completed and the re-

direct, for that matter, but as a matter of courtesy, if you have no objection we will let Mr. Bass testify. It will take only a few minutes.

MR. PAXSON: All right, if he will tell me what he wants to prove by him.

EXAMINER SPENCER: What do you propose to prove?

MR. McALLISTER: Facts with respect to the records and the instruments that are in operation at Mechanic Street Substation.

MR. PAXSON: I will consent if I will be given a reasonable opportunity to prepare cross-examination of Mr. Bass. I am not going to have Mr. Bass rushed in here and rushed out, with a lot of technical data and not have an opportunity to adequately cross-examine him.

EXAMINER SPENCER: You will have the opportunity.

MR. PAXSON: I do not want him put on without having time to consider the questions in the light of this record of proper and adequate cross-examination.

EXAMINER SPENCER: You are entitled to that.

MR. PAXSON: All right, with that understanding I have no objection to going forward.

EXAMINER SPENCER: All right, now is Mr. Bass here?

MR. McALLISTER: I will call him.

EXAMINER SPENCER: Gentlemen, we will take a recess for three or four minutes.

(Short recess.)

EXAMINER SPENCER: The hearing will be resumed. Let the record show that upon request of counsel for the Commission and with the consent of counsel for the respondent, upon the condition that he be permitted time in which to prepare questions for cross-examination, the cross-examination of the Witness Sibley is temporarily suspended and the Witness Bass recalled, as a witness for counsel for the Commission. You may proceed, Mr. McAllister.

(Witness temporarily excused.)

Whereupon

P. B. BASS,

a witness recalled for and on behalf of the Federal Power Commission, having been previously sworn, was examined and testified further as follows:

Redirect Examination

BY MR. McALLISTER:

Q. Mr. Bass, at Mechanic Street Substation do you have various ammeters on the circuits connected with your local load from that substation?

A. We have.

Q. Will you tell us what the range of the reading on those ammeters is?

MR. PAXSON: Just a moment. I don't recall what Mr. Bass' qualifications were and I don't know what he is going to ask him. As I recall I didn't object to Mr. Bass testifying before. He was telling us these were records and he was keeper of the records. I don't think Mr. Bass is qualified in any way except as a keeper of records. Maybe he has the qualifications, I just don't know.

EXAMINER SPENCER: You may read the record as to the qualifications of Mr. Bass or Mr. McAllister can qualify him, whichever will require the least time.

MR. McALLISTER: I would like to have the question answered and then I will have Mr. Bass state his qualifications.

EXAMINER SPENCER: All right, you may answer the question with that understanding.

THE WITNESS: May I have the question?

EXAMINER SPENCER: Read the question.

(Whereupon the reporter read the pending question as recorded.)

THE WITNESS: You would have to make your question more specific as to which ammeters you are referring to.

BY MR. McALLISTER:

Q. I am referring to the ammeters, Mr. Bass, which are in the circuits connected with the transformers, indicating the local load on the Mechanic Street Substation.

A. You want the range of those ammeters?

Q. The instruments or dials.

A. They read from zero to 2,000 amperes. That is the range of the scale of the ammeters.

Q. And what is the first marked subdivision on that scale?

A. 200 amperes.

Q. Now I believe you also have certain ammeters connected with the circuits which lead to General Cable Company?

A. That is correct.

Q. Are those ammeters, in so far as the scale on the dial is concerned, the same as the ammeters which are connected with the local load?

A. No, they have a smaller range, zero at 200.

Q. Zero to 200?

A. Yes, sir.

Q. And the lowest marked indication on that scale is what?

A. 50 amperes.

Q. And is this dial which I show you similar to the dial which is on the ammeters which are installed and connected with the General Cable Company load at Mechanic Street Substation?

A. I would say that this dial is similar to, if not an exact duplicate of the dial that is on the ammeters.

Q. Mr. Sibley testified this morning that the readings on the various dials are calibrated according to the flow of energy as measured through the ammeter in much the same fashion that a thermometer is tested and ranged, each range and each dial being constructed individually to make allowances for the vagaries in the different instruments and, taking those ammeters into consideration, I presume that this dial would be as nearly the same as the one which is on the ammeter at Mechanic Street Substation leading to the General Cable Company as those variations will permit, is that your understanding, Mr. Bass?

A. The question is kind of involved.

MR. PAXSON: It is too involved for me to understand. I don't know just what you are driving at.

BY MR. McALLISTER:

Q. I mean they do not make up a set of dials and then indiscriminately insert this one and that one into a set of ammeters, but, having constructed the ammeters, they arrange the readings to fit the individual instrument?

A. I get what you mean, yes. That is correct.

Q. And due to the difference in the instruments there may be a variation in this dial as compared to the dial ac-

tually in place on any of the ammeters which you have in your station?

A. That is true.

Q. That variation due to the vagaries in those instruments themselves would—

A. (interposing) As I said before, as near as I can picture it, this is about the same as the dial on the General Cable meters.

Q. Now, if there is an ammeter reading between zero and 50 indicated by the position of the needle at a particular time, what have you to say with respect to the accuracy or reasonable accuracy of that reading?

MR. PAXSON: Will you define the words reasonable accuracy?

MR. McALLISTER: I will let the witness define that when he finishes his answer, Mr. Paxson.

EXAMINER SPENCER: You may proceed.

THE WITNESS: Well, any reading below 50 is not as accurate as the readings would be above 50. That is, the man reading the pointer between zero and 50 has to divide in his own mind that section of the scale and then take a reading depending upon where the pointer is. That i he would have to estimate the reading.

BY MR. McALLISTER:

Q. In other words, if it was midway between zero and 50 how would it be read according to the instructions under which the station operators at Mechanic Street Station perform their duties?

A. If the needle was between, midway between zero and 50 he would put down a reading of 25 amperes.

Q. And if it ranged close or ¾ of the area between zero and 50, what would his reading be?

A. They read to say 10, 20, 25, 30 or 40 or 50 amperes, depending on where the needle is.

Q. In other words, they don't get down to a subdivision smaller than 5 or 10?

A. 5 or 10 amperes.

Q. 5 or 10 amperes?

A. 5 or 10 amperes; yes, sir.

Q. Do you have any other instruments connected with the circuits which go to General Cable Company which would indicate the varying loads from Mechanic Street Station to General Cable Company?

A. We have at General Cable Company our meters which are used to bill General Cable for the amount of power that they use and also demand instruments for recording the demands of the load at General Cable.

Q. You say the demand meter, is that a recording meter, a graph recording meter so that the readings at various times will be recorded automatically by the instrument?

A. It is a graph type instrument, that is correct.

Q. And this instrument would show for certain intervals the load of the General Cable Company from Mechanic Street Substation, would it not?

A. It will show the demand of General Cable Load.

Q. Will you explain what that is, Mr. Bass?

A. By demand I mean the total load being drawn at any particular instance.

Q. Now, why do you maintain ammeters in the circuits leading to General Cable?

A. In order that we may determine what the flow of current is to General Cable.

Q. That is the load?

A. The load.

Q. And does it also serve as a means for determining whether or not the line is overloaded or not?

A. Oh, yes, if there is any question about the line being overloaded we would have to depend on the ammeters to tell us.

Q. What have you to say, Mr. Bass, with respect to the accuracy of the recordings and records which you maintain showing the load on Mechanic Street Substation in so far as your records indicate that load which goes to what is termed local distribution from that substation?

A. Are you referring now to the transformer ammeters or to the ammeters which are used to measure the flow of current from the individual feeders leaving Mechanic Street to serve the local load?

Q. I mean the first to which you have referred, not the feeders going out from the transformer bank, but those feeders which you might say are on the transformer bank.

A. Those instruments are checked periodically by our laboratory and I would say that they are reasonably accurate. That is by reasonable, I would certainly think that they would be 95 per cent correct.

Q. As accurate as any instrument can be that is maintained and operated in a substation?

A. They are accurate. As I say 5 per cent or so, that is within reason. All you could expect.

Q. Do you rely upon the readings from those ammeters connected with the transformer bank, I mean the ammeters which really show the flow of energy from the bus and through the transformers exclusive of the ammeters on the circuits going out from the transformers to serve individual customers or areas of territory which you reach?

A. We rely on those ammeters on the transformer banks to plot the daily load curve for that substation.

Q. Is that load curve plotted from the instrument readings that are recorded on the log sheets at the various intervals half-hourly from 6 a. m. to midnight and hourly from midnight until 6 a. m.?

A. That is correct. These readings are taken by the operator and totaled and the operator has a table which converts the total of the ammeter readings into KVA load, which is the load on the substation.

Q. And are these records in your opinion correct and true?

A. Oh, positively. We use them for all of our System studies, studies of the load on a given substation.

Q. Mr. Bass, what is your position with Public Service Electric and Gas Company?

A. I am assistant division superintendent, Central Division.

Q. How long have you been with Public Service Electric and Gas Company?

A. Since August, 1921.

Q. Are you a graduate electrical engineer?

A. I graduated as an electrical engineer at the University of Virginia in 1920 and took a post-graduate course at the Massachusetts Institute of Technology and received a degree in 1922 as Master of Science in Electrical Engineering.

Q. Now, will you tell us briefly what has been the nature of your experience and what positions have you held during all that time you have been with Public Service?

A. First I was employed as what is known as a cadet engineer and went through the cadet engineering training course for a period of three years. At the end of that time I was assigned to the electrical distribution department in the Central Division and I worked there as an engineer in the distribution department until around 1926, when I was transferred for a period of about a year to our general offices in Newark, where I was in the office of the distribution engineer. I was then transferred back to the Central Division in the office of the division superintendent. Before I went to Newark I was in the Elizabeth dis-

trict, which is one of the five districts in the Central Division.

Around about 1930 or 1931 I was made assistant to the division superintendent, Central Division, and on January 1, 1938, I was made assistant division superintendent.

Q. Now will you tell us, Mr. Bass, something about the character of the work which you have been called upon to perform during the time you have been with Public Service as to operation, construction and that type of work, taking into consideration the major division of the work?

A. In the distribution department we maintained and constructed overhead lines, also underground lines and we make engineering studies and submit recommendations to our general offices covering extensions, new lines, and we also study the loads on our circuits in order to determine when a circuit needs to be relieved, when we need additional transformer capacity at a substation, and also make recommendations covering new transmission lines. In other words in addition to covering operation and maintenance, we also make our own load studies and thereafter recommendations to our general office for reenforcements and additions to the plant.

Q. Do any of the generating plants of the Public Service Electric and Gas Company fall in your Division? I mean are any of the generating plants of Public Service Electric and Gas Company located in the Central Division?

A. The only generating plant is Perth Amboy, we have no jurisdiction over that plant. That comes under the generating department.

Q. That comes under the generating department?

A. That is correct.

Q. And that is maintained as cold standby at the present time?

A. That station has not been in operation for four or five years or longer.

Q. Why are you concerned with the loads on your Division, Mr. Bass?

A. Well, we are looking out for service to our customers. We don't want to have overloaded feeders and we want to insure our customers proper service.

Q. And I think as you stated at the time you appeared as a witness in this case previously, Mr. Bass, on September 28th, that keeping of the records, the substation employees and the like at Mechanic Street comes under your direct supervision and control?

A. That is correct. We take the current as it leaves the generating station, maintain and construct the lines from the point where those lines enter our division and we operate and maintain substations in the Central Division. That work comes under my supervision.

Q. The ammeters on the transformer banks, the ones to which we have just referred, not those leading away from the circuits to individual customers, are on the 4,000 volt side of the transformer?

A. That is correct.

Q. What is the voltage on the other side of the transformers, approximately?

A. 26,400 volts.

Q. And during the periods of average daytime loads on the transformer banks at Mechanic Street Substation, Mr. Bass, what would be the range of the ammeters, the indicators of the ammeters?

A. You mean the range of the needle?

Q. Yes.

A. You will have to define what you mean by average load. I happen to know what the peak load is on the substation and of course it varies from the peak load down to one or two thousand KVA, I will say. Now the full load current on each of the two transformer banks at Mechanic Street Substation is around 11,000 amperes.

Q. And the low load would be about what? Did you mean 1,100 or 11,000?

A. It should be 1,100 amperes, instead of 11,000.

Q. At time of low load?

A. It probably reads around 200 amperes.

Q. And the average during the day?

A. Anywhere from 2 to 400 amperes or thereabouts.

Q. And during the heavy time it would be around 1,100?

A. No, that is the full load rate on the transformer bank.

Q. I see.

A. We keep two transformer banks in service.

Q. The other times it would be 2 to 4 hundred?

A. That is right.

Q. I see. In determining the loads on various circuits throughout the network in the Central Division, Mr. Bass, do you rely upon the readings and calculations made from the readings at Mechanic Street Substation as well as readings from other substations under your jurisdiction?

A. That is correct.

Q. That is the basic data upon which the calculations of that character are made, is it not, Mr. Bass?

A. Yes, it is.

MR. McALLISTER: I may have one more question. Just a moment. (After a pause.) You may cross examine, Mr. Paxson.

MR. PAXSON: Just a second.

EXAMINER SPENCER: All right. Gentlemen, we will recess until two o'clock. The witness states he can't get his train before three or four o'clock and it is satisfactory with him to recess now.

MR. McALLISTER: All right.

(Whereupon, at 1:05 o'clock p. m., a recess was taken until 2:00 o'clock p. m. this day.)

Afternoon Session

(Met, pursuant to the recess, at 2:00 o'clock p. m.)

EXAMINER SPENCER: Gentlemen, the hearing will now be resumed.

P. B. BASS

resumed the witness stand and, having been previously sworn, testified as follows:

Direct Examination (Resumed)

BY MR. McALLISTER:

Q. Mr. Bass, I believe you were requested to secure from the graphic meter on the load of the General Cable Company, the readings for certain periods. Now, will you be good enough to read into the record the record which you obtained from those graphs and the time that corresponds to the readings?

A. These are the readings that I gave you yesterday morning?

Q. That is right.

MR. PAXSON: May I have the question read, Mr. Examiner? I did not understand it.

EXAMINER SPENCER: Will the Reporter read the question please?

(The question was then read.)

EXAMINER SPENCER: You may proceed.

THE WITNESS: For January 26, 1937, at 8:30 p. m., 2400 kilowatt demand; 9:00 p. m., 2150 kilowatts; 9:30 p. m., 2450 kilowatts; 10:00 p. m., 2700 kilowatts.

August 5, 1937, 7:00 a. m., 2020 kilowatts; 7:30 a. m., 1150 kilowatts; 8:00 a. m., 1000 kilowatts.

November 16, 1937, 7:00 p. m., 770 kilowatts.

December 15, 1937, 8:30 p. m., 2300 kilowatts; 9:00 p. m., 2120 kilowatts; 9:30 p. m., 2250 kilowatts; 10:00 p. m., 2220 kilowatts.

March 22, 1938—

MR. PAXSON: Just a moment, please. I object to the introduction of any testimony for any period subsequent to March 14, 1938 as not pertinent to this issue and having no bearings thereon.

EXAMINER SPENCER: The objection is overruled. An exception for counsel for Respondent is noted.

You may proceed, Mr. Bass.

THE WITNESS: March 22, 1938, 9:00 a. m., 2020 kilowatts; 9:30 a. m., 2250 kilowatts; 10:00 a. m., 2020 kilowatts.

May 20, 1938—

MR. PAXSON: I have the same objection, Mr. Examiner.

EXAMINER SPENCER: Yes; it is noted.

MR. PAXSON: And the same exception?

EXAMINER SPENCER: The objection and exception will be noted to each of these readings subsequent to March 14, 1938.

THE WITNESS: May 20, 1938, 10:30 a. m., 2120 kilowatts; 11:00 a. m., 2250 kilowatts; 11:30 a. m., 2220 kilowatts.

May 23, 1938, 10:30 a. m., 192 kilowatts; 11:00 a. m., 192 kilowatts; 11:30 a. m., 192 kilowatts.

July 25, 1938—

MR. PAXSON: Do I understand my exception runs to all of these, Mr. Examiner?

EXAMINER SPENCER: Yes, Mr. Paxson.

MR. PAXSON: Each and every time?

EXAMINER SPENCER: Yes.

THE WITNESS: July 25, 1938, 3:00 p. m. 2100 kilowatts; 3:30 p. m., 1300 kilowatts; 4:00 p. m., 660 kilowatts.

MR. PAXSON: May I ask for an offer as to what counsel intends to show by these readings?

EXAMINER SPENCER: Will counsel for the Commission indicate the purpose of this question and response?

MR. McALLISTER: To show the loads on Mechanic Street substation so far as the General Cable Company's requirements are concerned for the days and the times that were indicated by the witness.

EXAMINER SPENCER: And is that related to any other testimony that has been introduced?

MR. McALLISTER: Yes, Mr. Examiner. It is related to the testimony shown on Exhibits 13 and 16.

EXAMINER SPENCER: All right.

MR. McALLISTER: I mean it is related to information on Exhibits Nos. 13 and 16, about which testimony has been offered.

EXAMINER SPENCER: I thought that was what it was.

MR. McALLISTER: You may cross-examine, Mr. Paxson.

Cross Examination

BY MR. PAXSON:

Q. Mr. Bass, what kind of a meter was that from which you took these readings which you have just recited?

A. That was the demand meter which is installed at the General Cable Company's plant which is used to measure the demand for which we bill the customer.

Q. What type of demand meter was it?

A. I don't happen to know the type. I will say this, that it was a recording instrument.

Q. Was it what you call a graphic meter?

A. A graphic meter. That is right.

Q. Now, Mr. Bass, are you a meter expert?

A. I am not.

Q. Mr. Bass, you told us this morning, I believe, that you are assistant superintendent of the Central Division of the Public Service Electric and Gas Company, which includes the Mechanic Street substation?

A. That is correct.

Q. And you are concerned only with operations?

A. That is right. I am in the operating department.

Q. You are in the operating department?

A. Yes, sir.

Q. Mr. Bass, at Metuchen you have a large substation with a large amount of capacity? Is that correct?

A. That is correct. We call that the Metuchen switching station as distinguished from the Metuchen substation.

Q. There are four circuits from Metuchen leading into the Mechanic Street substation? Is that right?

A. There are two 26000 volt circuits which feed direct from Metuchen to Mechanic Street, and two others which feed to Mechanic Street by way of intermediate substations.

Q. Mr. Bass, is it or is it not possible to carry all of

the Mechanic Street load, including the Staten Island, from Metuchen?

MR. McALLISTER: Unless the question is made more specific as to the load and conditions or unless the witness specifies the conditions in his answer I object to the form of the question.

MR. PAXSON: I specify the maximum load at any time on Mechanic Street substation.

MR. McALLISTER: The maximum load as to what?

MR. PAXSON: The maximum load at any time on Mechanic Street substation. That means any amount of energy drawn out of that substation in any and all circumstances.

MR. McALLISTER: I must still object to the form of the question unless it is tied to some particular time when the load at Mechanic Street might be known or unless it is stated.

MR. PAXSON: The witness is in charge of operations and he has testified about his operating conditions.

I asked a simple question, but he objects to it.

EXAMINER SPENCER: The witness may answer.

THE WITNESS: Suppose I give you the answer with respect to any load we have had on the substation up to the present time.

BY MR. PAXSON:

Q. All right. That is satisfactory.

A. I would say that we can carry the Mechanic Street load on the four lines from Metuchen.

Q. Of course, that includes anything taken off to Staten Island?

A. That is correct.

Q. Actually you can carry twice that load, can't you, from Metuchen on these circuits leading from Metuchen?

A. I would not doubt it.

Q. Then you do not need any help from Jersey Central Power and Light Company at any time to carry any part of your load?

MR. McALLISTER: That is not the force of the answer by the witness in any manner, shape or form. He has merely inquired up to this time as to the capacity of the lines between Metuchen and Mechanic Street, without any reference whatever to the source from which the energy will come. Now, there is injected "therefore, you can carry the load without drawing on Jersey Central Power and Light Company". That does not follow in any sense of the word.

MR. PAXSON: This is cross-examination. I can put leading questions.

EXAMINER SPENCER: You may answer the question.

THE WITNESS: I will say this, that we can carry the load at Mechanic Street substation without the Jersey Central Power and Light Company ties. Naturally our system is designed so that we can carry our load at our substations without these interconnections which we have.

MR. PAXSON: That is all.

EXAMINER SPENCER: Does that complete the examination of the witness?

MR. McALLISTER: That is all, Mr. Bass.

EXAMINER SPENCER: You may be excused, Mr. Bass.

(Witness excused.)

EXAMINER SPENCER: Now, Mr. Sibley, will you take the stand, please?

EDGAR DOW SIBLEY

resumed the witness stand and, having been previously sworn, testified as follows:

Cross Examination (Resumed)

BY MR. McALLISTER:

Q. Mr. Sibley, what variation in speed of generation at Livingston plant will be necessary before the governor will react?

A. I don't know.

Q. Do you know what load would be required on the system of the Staten Island Edison Corporation to affect the governor on any of the generators in that plant?

A. I do not.

Q. Do you have any information or knowledge as to the change in speed which will normally affect the governors?

A. No, sir.

Q. What variation in load expressed or stated in kilowatts would be required to affect the governor on a generator?

MR. PAXSON: Just a moment, please. I do not believe Mr. Sibley has qualified as a mechanical engineer, but he has as an electrical engineer.

MR. McALLISTER: I am asking him if he knows.

EXAMINER SPENCER: You may ask him if he knows.

THE WITNESS: I believe there will have to be another condition entering into that question.

BY MR. McALLISTER:

Q. Well, on a percentage basis. I will state it in this way, Mr. Sibley: Let's assume a 15,000 rated k. w. generator is in normal operation carrying a load of 10,000 k. w.; what load would be required, if you know, in addition to the 10,000 before that governor would react or respond?

A. I don't know. I would say that that is a matter of the individual unit or the individual governor.

Q. Of the individual governor?

A. Yes.

Q. Within what range are governors adjusted, if you know?

A. I don't know.

Q. You have no opinion on that at all?

A. I have not.

Q. Then your opinion this morning that the governors would not react under certain conditions was not based upon any very substantial information or knowledge?

A. No; that is not true. I have spent during my life many hours on the switchboard in Central stations. In these stations there are several units connected to a common bus.

Q. When you say units do you mean generating units?

A. Turbo alternators. When the load comes on to that station, as it would in the case of an elevated railroad load, if you please, some of those turbines respond to a greater extent than the others do to assist in carrying that load.

Q. But they all respond?

A. As a usual thing I imagine they would all respond to a sufficiently large load.

Q. The force of that answer is, Mr. Sibley, that you can adjust the generators so that certain generators will pick up a larger portion of the load as it comes on it? Is that what you mean?

A. Well, that would be inherent in the governor.

Q. Inherent in the governor or inherent in the adjustment of the governor?

A. Yes; it would be in the rig of the governor, the lever arms and the governor mechanism.

Q. Do you know with that range what load would be required to affect the governors?

A. I think that would vary with the individual units.

Q. I am asking you if you know within what range the governors would respond to load. Take a small load. The generators on the line are producing 10,000 k. w.; 1,000 more comes on the line. The generators must pick that up, must they not?

A. I assume you are speaking of an isolated case where one generator is supplying a community?

Q. I am just speaking of the problem I have just given you, Mr. Sibley; and that is one line, as I said, with 10,000. But let's divide it up into four or five units.

A. And that is all the supply that this line has?

Q. That is right.

A. Now, the question is what?

Q. Whatever load comes on must be handled and supplied by those generators on the line?

A. Absolutely.

Q. And if it is only 100 k. w., they must carry it?

A. That is correct.

Q. To the extent that the load tends to slow down the generators the governors must react to respond? Isn't that true?

A. That is true.

Q. And it is that quantity which you say you know nothing about, as to the quantity of energy that would be required to alter the supply of a generator which, in turn, would require that the governor react?

A. That is correct.

Q. Looking at your chart which is exhibit No. 8, Mr. Sibley, at about 2:22 a. m., there is a line indicating a marked increase in the flow of electric energy from Public Service Electric and Gas Company to Jersey Central Power and Light Company.

Pardon me. It is from Jersey Central Power and Light Company to Public Service Electric and Gas Company? Isn't that true, Mr. Sibley? That is at 2:22 a. m. Look at the lower one, the blue one.

A. This is from Jersey Central?

Q. In the first part of the question I reversed myself because I read the notation under the chart.

A. I see.

EXAMINER SPENCER: Will you read the question, please, Mr. Reporter?

(The following was then read by the Reporter:)

"Q. Looking at your chart, which is exhibit No. 8, Mr. Sibley, at about 2:22 a. m., there is a line indicating a marked increase in the flow of electric energy from Jersey Central Power and Light Company to Public Service Electrical and Gas Company."

THE WITNESS: Yes; there is a mark on the chart.

BY MR. McALLISTER:

Q. What does that mean?

A. It means that momentarily or for the width of this line that the electrical energy in the tie-line between Jersey Central Power and Light Company and Public Service Electric and Gas Company had in it approximately 10,500 kilowatts for a duration perhaps of a quarter of a minute.

Q. Above on the red chart for the same period, about 2:22 a. m., isn't there a marked increase in the flow of energy from Public Service Electric and Gas Company to Staten Island Edison Corporation?

A. Not at 2:22 a. m.

Q. What is that reading there? What time did you read the one above?

A. Well, possibly I mistook the lower line.

Q. I was referring to the first one, 2:22 a. m.

A. There is one a little later.

Q. There is one a little later, about 2:24?

A. Yes.

Q. Which really corresponds with the one before. Isn't that true?

A. I got over into the wrong space. It is a little nearer to 2:25 than it is to 2:22. Instead of calling that line 2:22 I would probably have called that line 2:23. And that would modify or take off a slight amount of kilowatts. It would be 10,000.

Now, I will come up on that other line.

MR. PAXSON: Just a minute, Mr. Sibley. As we read the chart there is no line that takes off 10,000.

BY MR. McALLISTER:

Q. It is 7,500, isn't it?

A. Yes; it is 7,500.

Q. It is three blocks, instead of four.

A. From the chart above there is an indication that for the duration of something less than a minute there was a draft of power from the Public Service Electric and Gas Company system to the Staten Island Edison Corporation. I believe both of these marks on the chart were due to the cable failure of the Staten Island Edison Company.

Q. By cable failure you mean other than the tie between Mechanic Street and Atlantic substations?

A. That is right. There was no doubt a surge on the Staten Island Edison Company's system.

Q. And that correspondingly is reflected on the draw upon the flow of energy from Jersey Central Power and

Light Company to Public Service Electric and Gas Company, as shown by the indication on the blue chart?

A. Yes; that is correct.

Q. If we come over to 3:00 o'clock in the morning, between 3:10 and 3:15 there is a demand on Mechanic Street substation so far as Staten Island Edison Corporation is concerned of approximately 9,600 kilowatts. Isn't that true?

A. That is correct.

Q. At that particular time there was a flow of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company of about somewhere between 7,000 and 7,500 kilowatts?

A. Well, I don't think that is quite a true statement. This little peak or indenture there is about two minutes wide. If you start with the first part and the charts are absolutely synchronized, which I tried to do, at the beginning of that peak—

Q. That is, the beginning of the peak to Staten Island, you mean?

A. Yes; the beginning of the peak to Staten Island. It is between 6,500 and 7,000. Then it drops down to about 3,500. Then at the time the peak is ended it is back up to about 7,000.

Q. As a matter of fact, if you lay a rule on that, Mr. Sibley, will you not find that at the time of the beginning of the highest part of the peak the supply of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company was near the valley of the line as you show it there?

A. I do not have a rule but I have a piece of paper here from which I will try to state that. The graph of the power from the Public Service Electric and Gas Company to Staten Island Edison Corporation is more or less steady, and during that time the line fluctuates from the Jersey Central Power and Light Company to the

Public Service Electric and Gas Company; so you will have to be explicit on a certain time.

Q. During all of the time that is shown by the horizontal line at the very apex of the picture indicating the flow of energy from Public Service Electric and Gas Company to Staten Island Edison Corporation?

A. Yes.

Q. Referring to that, which is about, as I read it, 2:12 or 3:12. Isn't that about where you read the beginning of that?

A. Yes; I would say that that is correct.

Q. At that same corresponding time what was the flow from Jersey Central Power and Light Company to Public Service Electric and Gas Company?

A. Between 6500 and 7000 kilowatts.

Q. That energy being delivered to Public Service Electric and Gas Company which originated with Jersey Central Power and Light Company flowed into Mechanic Street substation?

A. Yes; that is correct.

Q. The load on Mechanic Street substation would be the 9600 kilowatts flowing to Staten Island Edison Corporation plus the local load, whatever that might be? Isn't that true?

A. Including the General Cable.

Q. Including the General Cable?

A. And the local load.

Q. And the local load?

A. And this Staten Island Edison Corporation load. Those three added together.

Q. Let us say it would be something in excess of 10,000 kilowatts.

A. All right, sir.

Q. The amount flowing to Staten Island is 9600. It would certainly be reasonable to add on at least 400 more for the local load, wouldn't it?

A. Well, I do not have these figures of the local load, but they were submitted on 24 steps there. You can refer to that and get an average figure.

Q. I am willing to have you take any figure you want to mention there for the purpose of this question, even adding on 400. There would be no question of 400 being less than the actual load, in addition to the energy flowing to Staten Island Edison Corporation?

MR. PAXSON: That is objected to. Mr. Sibley said he didn't know the load.

BY MR. McALLISTER:

Q. Does this furnish you any information or give you any indication as to the load, Mr. Sibley (indicating)?

MR. PAXSON: What is that document that you are offering him, Mr. McAllister?

MR. McALLISTER: It is exhibit No. 16.

THE WITNESS: I don't see any three o'clock readings on that sheet.

MR. McALLISTER: This is exhibit No. 12, Mr. Paxson (indicating).

THE WITNESS: On this exhibit 12, on July 19th at three o'clock a. m., this exhibit shows—

MR. PAXSON: Just a second please. This exhibit shows loads for 1937, and the exhibit he is comparing is for 1936.

THE WITNESS: Yes; that is true, of course. I imagine this was a hypothetical question, anyway.

BY MR. McALLISTER:

Q. That is true. I was merely asking you to assume that that load would be at least 400 kilowatts. For the purpose of my question I was going to use the assumption that there was 10,000 kilowatts required at Mechanic Street

substation to supply the load, which I think would be a reasonable assumption, Mr. Sibley.

A. Well, a year ago this local load is over 2,000 kilowatts at three o'clock in the morning.

Q. So we would not be indulging in a violent assumption if on this date we said it was 400, would we?

A. Well, there is a good deal of difference between 400 and 2,000.

Q. Let's get at it in another way. I am just trying to get a basis upon which to put a question, Mr. Sibley. Let us assume the load going to Staten Island Edison Corporation was the only load on Mechanic Street. That is 9600 kilowatts, isn't it?

A. Yes; that is correct. That is from 3:12 to 3:14.

Q. That is right. Now, we do know that there is some other load there in addition to that at Mechanic Street substation. Isn't that true?

A. I assume that is true.

Q. Now, Mr. Sibley, if, as you state, 6500 kilowatts of the 9,600 kilowatts on the bus at Mechanic Street substation was received from Jersey Central Power and Light Company, then the balance required to meet the load going to Staten Island Edison Corporation would be coming in from Metuchen? Isn't that true?

A. Well, under the assumptions we have made, that is true.

Q. And all of that energy, both the quantity coming from the Jersey Central Power and Light Company to Mechanic Street substation and the quantity coming in from Metuchen would combine to supply the load required to serve the demand of Staten Island Edison Corporation? Isn't that true, Mr. Sibley?

A. I believe that is a true statement.

Q. In other words, no part of the energy from Jersey Central Power and Light Company received on the bus at Mechanic Street substation could flow to Metuchen at

a time when the energy from Metuchen was flowing into Mechanic Street substation? Isn't that true?

A. Will you please repeat the question?

EXAMINER SPENCER: Will the Reporter read the question, please?

(The question was then read by the Reporter.)

THE WITNESS: The power delivered to Staten Island Edison Corporation from the Public Service Electric and Gas Company under the assumptions just described would indicate that the power on this bus was obtained jointly from the Jersey Central Power and Light Company and over cables between Metuchen and Mechanic Street. I believe the power thus transported to Staten Island Edison Corporation was a mixture of these kilowatt hours.

BY MR. PAXSON:

Q. You mean "would be" and not "was", since it was a hypothetical case?

A. Under the assumptions.

BY MR. McALLISTER:

Q. That would be the situation during either of these two major demands as shown on your exhibit No. 8, would it not, Mr. Sibley?

MR. PAXSON: That is objected to upon the ground that it would not be the situation. There is nothing on this graph that shows the local load.

EXAMINER SPENCER: The objection is overruled. You may proceed to answer, Mr. Sibley.

THE WITNESS: That was true for the assumptions stated by Mr. McAllister.

BY MR. McALLISTER:

Q. With respect to these two major emergencies that are shown from 2:30 up to and approaching the hour of

3:00 a. m., and then from approximately 3:10 until 4:10. No I mean 3:30. Let's take it there. You would have this situation, wouldn't you? You have the demand requirements of Staten Island Edison Corporation; and they are shown in orange on your chart during those periods. Is that not correct, Mr. Sibley?

A. That is correct.

Q. For the same period in blue you show the energy which was coming to the Mechanic Street Substation from the Jersey Central Power and Light Company.

A. That is right.

Q. And during those periods the quantity of energy required to supply the load at Mechanic Street would be that amount which would equal the sum of the energy going to Staten Island Edison Corporation and the local load, including the load to General Cable. That would be the load on the bus at Mechanic Street substation?

A. That is true, I believe.

Q. Now, that total load would be greater, would it not, than the amount being received from the Jersey Central Power and Light Company during that time? Will you please look at your chart?

A. From what time, please?

Q. Begin at 2:35, until about 2:52 or 2:53, just before that straight line at the bottom of the orange. Do you see that?

MR. PAXSON: Did you say 2:35 or 3:35, Mr. McAllister?

MR. McALLISTER: I said 2:35.

THE WITNESS: All right. Now, I have that. Now, what is the local load assumed to be in this case?

BY MR. McALLISTER:

Q. It would be some amount of energy, but I haven't any particular reason for wanting to make it any amount.

You may make your own determination or assumption based upon your knowledge of that operation.

A. I don't know what it is, so I will take any figure you want to put down.

Q. 2,000 to 4,000. 2,000 is all right. I think that is reasonable.

A. Is there a question that I ought to answer?

Q. Yes; if you please. I thought you were figuring, so I was giving you time to do it.

A. This period, as I remember it, was from 2:35 to 2:52. Now, during that time the requirements to Staten Island fluctuated. Most of the time it was up around 8,400. Then it left it and dribbled off until 2:52, as I read the chart, it is under 3,000.

Q. 2:52 is the maximum down at the bottom there, as I read it.

A. All right then, 1,000.

Q. Perhaps I cannot read the chart. That may be the whole trouble. I am talking about this part right here (indicating), from 35 here over to that point there (indicating).

A. Here is 35, 35, 40. Well, it is about 47.

Q. What did I say?

A. You said 52.

Q. Make it 47.

EXAMINER SPENCER: Now, Mr. McAllister, ask your question with the figure you have in mind, so that the record will show it.

BY MR. McALLISTER:

Q. For the period from 2:32 a. m. to 2:47 a. m. the load at the Mechanic Street Substation would be some amount in excess of the 8,400 which at that time was flowing from Mechanic Street station to Staten Island?

A. That is correct.

Q. If, during that same time as shown by the chart

the average energy flowing from Jersey Central Power and Light Company to Public Service Electric and Gas Company was approximately 7,500 kilowatts on the average, then the difference between the energy on the bus at Mechanic Street which came from the Jersey Central Power and Light Company and the amount required to supply the demands of Staten Island Edison Corporation, plus whatever amount would represent the local load, that total, or the difference between 7,500 and 8,400, which would be approximately 900 kilowatts, plus the local load, whatever that would be, would of necessity flow from Metuchen over the available circuits? Isn't that true?

A. That is true.

Q. Therefore, the entire quantity of energy coming from Jersey Central Power and Light Company to the Mechanic Street bus would be utilized in supplying the load to Staten Island Edison Corporation, less whatever proportion might be utilized in supplying the local load. You would have the two quantities coming on to the bus from the Jersey Central Power and Light Company and Metuchen and then dividing to supply the load to go across to Staten Island Edison Corporation?

A. These two sources of power would jointly supply that bus at this particular time and under these particular conditions that you mentioned, and the energy, under this assumption, would probably be—if we could ear-mark kilowatt hours—a mixture of the two.

Q. That would flow from Mechanic Street to Staten Island? Your answer is "yes"?

A. Yes, sir.

EXAMINER SPENCER: Have you any other questions, Mr. McAllister?

MR. McALLISTER: I will have a few more questions, but I was just trying to make certain so as to eliminate any questions that I might be able to eliminate.

Well, Mr. Examiner, those are all of the questions that I have to ask.

EXAMINER SPENCER: You may examine the witness on redirect, Mr. Paxson.

MR. PAXSON: May we have a short recess at this time?

EXAMINER SPENCER: For how long?

MR. PAXSON: For five or ten minutes.

EXAMINER SPENCER: We will recess at this time, gentlemen, for ten minutes.

(Whereupon, a short recess was taken, after which the following occurred:)

EXAMINER SPENCER: Gentlemen, the hearing will now be resumed.

MR. PAXSON: If the Commission please, the Examiner will recall that yesterday Mr. McAllister, on page 750 of the record, and continuing over on page 751, asked the witness Sibley to read from his chart, exhibit No. 6, the kilowatt hours represented thereby for the month of July.

Last evening he checked over the transcript of testimony and found that the figures which are inserted therein are not what Mr. Sibley testified to. Both one of our engineers who sat at the table here and one of theirs took down the figures as they came from Mr. Sibley's mouth. I understand one of the engineers for the Commission did also. They have had a conference, and I understand that now we are all agreed that the figures as we both took them down are correct and should be inserted in the record in lieu of the transcript.

MR. McALLISTER: That is correct, Mr. Examiner. They are determined to be accurate figures.

EXAMINER SPENCER: Then, have the corrected figures read into the record. Let the record show that an error occurred in some way in this testimony and that Counsel for the Commission and Counsel for Respondent have agreed upon a corrected statement. Then, someone may read it.

MR. A. E. BURNS: Mr. Sibley's testimony on the flow to Staten Island Edison Corporation is as follows. And these are in thousands:

8,000, 9,000, 9,000, 8,000, 8,000, 8,000, 11,000,
9,000, 12,000, 8,000, 11,000, 12,000, 14,000, 7,000,
8,000, 11,000, 9,000, 6,000, 8,000, 8,000, 8,000,
10,000, 8,000, 5,000, 7,000, 14,000, 9,000, 8,000.
8,000, 7,000, and 8,000.

MR. PAXSON: That is to the Staten Island Edison Corporation.

MR. BURNS: Yes; that is to the Staten Island Edison Corporation.

The ones I am now going to read are to Public Service Electric and Gas Company. And these are all in thousands:

9,000, 8,000, 8,000, 8,000, 8,000, 8,000, 7,000,
8,000, 9,000, 9,000, 6,000, 5,000, 6,000, 11,000,
12,000, 8,000, 7,000, 10,000, 10,000, 11,000, 8,000,
9,000, 10,000, 10,000, 8,000, 6,000, 12,000, 11,000,
9,000, 11,000, and 7,000.

EXAMINER SPENCER: Do those figures correspond and check?

MR. McALLISTER: Those check with what we have now, Mr. Examiner.

EXAMINER SPENCER: You may proceed, Mr. Paxson.

Redirect Examination

BY MR. PAXSON:

Q. Mr. Sibley, at page 696 of the record, beginning at the bottom of page 695 and continuing over on the first line of page 696, you stated or, rather, the transcript reads:

"In fact, I believe the energy purchased during this emergency was approximately 40 per cent of all emergency power furnished by the Staten Island Edison Corporation."

I show you this transcript so that you can see what I am referring to, Mr. Sibley, and ask you if that word "by" is what you meant, or did you mean something else, or did you say something else?

A. That "by" should be "to".

Q. Now, Mr. Sibley, various questions were asked you yesterday with respect to exhibit No. 6 and a comparison made therewith with figures which appear on exhibit No. 9, introduced through Witness Bass, showing or purporting to show the amount of energy transferred from Staten Island Edison Corporation or to Staten Island Edison Corporation. Has exhibit No. 19, which is a Commission's exhibit, ever been checked for accuracy by you?

A. I do not have that exhibit, Mr. Paxson.

Q. You gave a lot of testimony with respect to it. Was that testimony all based upon the assumption that those figures were correct, or did you have knowledge that they are correct?

A. I believe I stated that I thought they were correct.

Q. Did you say you thought they were correct or you assumed they were correct?

A. I did not check these ratings, if that is what you mean.

Q. You say you did not?

A. No, sir, I did not check them.

Q. That is all I am asking you. You just assumed them to be correct in your answers?

A. They looked all right.

Q. Now, with respect to exhibit No. 6 you were asked a question as to whether the figures which appeared on exhibit No. 19, assuming them to be correct, were more reliable and accurate than this graph which was introduced in evidence by you. Just for the purpose of clarity tell us just what is the purpose of this graph.

A. I attempted to show graphically that the ebb and flow of power from the Public Service Electric and Gas Company to Staten Island Edison Company balances out approximately each day, month, and year.

Q. I don't want to go all over that again. I think it has been gone over in direct and by cross examination. If Mr. McAllister will pardon for a leading question, would you say that the purpose of this graph was to visualize in general what is shown in details by figures?

A. That is what I attempted to do; yes, sir.

Q. That is all I wanted to bring out. It is probably there already and in better language.

Now, Mr. Sibley, you were testifying this morning as to the occasions on which you were in the Mechanic Street Substation of the Public Service Electric and Gas Company at Perth Amboy. I recall you stated you first went there on September 12th, and then I think you said you were there on the 13th.

How many times were you there?

A. Well, on the 12th of September, 1938, I arrived at South Amboy in time for lunch. In the afternoon I went over to the office of the superintendent and over into the substation.

On the 13th I spent all day copying records in the office of Mr. Chamberlain there.

On the 15th I went to South Amboy power station with an associate and spent the day there copying records.

The 16th I was there until around one o'clock.

On Monday, the 19th, I was in Perth Amboy in the office there of Mr. Chamberlain.

Then on Saturday, October 1st, I was in the office of Mr. Chamberlain obtaining some records and also visited the Mechanic Street Substation.

Q. On your visits to this Mechanic Street Substation were you alone or did you take some assistants?

A. On October 1st I went in accompanied by Mr. Hooven of Public Service Electric and Gas Company, and on September 12th I was again accompanied by Mr. Hooven and one of my associates, Harry Rankin.

Q. Did Mr. Rankin assist you in your work and aid you in the compilation of these exhibits and the gathering of information from the records?

A. Yes, I read the figures and Mr. Rankin entered them on cross section paper.

Q. Mr. Rankin was working under your direction?

A. In this particular case.

Q. Now, Mr. Sibley, referring again to Exhibit No. 8, which is this chart which you have been testifying about today, is there anything on this chart which will enable you to ascertain what the load is on Mechanic Street Substation?

A. Only the portion of the energy being delivered from the Public Service Electric and Gas Company to Staten Island Edison Company. Maybe I didn't state that clearly. The entire load that was delivered to Staten Island Edison Corporation.

Q. But no other load?

A. Oh, I didn't include on here the local load or the load in the General Cable factory.

Q. Now, Mr. Sibley, on page 728 of the record appears a question:

> "That is true, but nevertheless, in the consideration of the practical problem whether or not energy from a common point will flow out over available cir-

cuits does not require this complicated computation that you have referred to for the solution of that problem, does it?"

And then you answered, your answer here appears to be:

"Well, we will so consider it. As far as the direction of the flow is given in one of your exhibits, I have no quarrel about the computation of the Commission's engineers in it."

Now I ask you in making that answer did you have in mind the question of computation by the engineers or were you considering any question about direction of flow?

A. I believe that testimony was subsequent to some controversy about the flow of power through parallel paths. I don't have the record here.

Q. Do you want to see the record?

A. Am I correct in that? Then, maybe I can tell you what I meant to say.

Q. I will have to give you the record to refresh your mind.

A. Well, what I had in mind there on the previous page I was being questioned about the flow of energy in parallel paths and the proportion in each and the amperes and so on, and I would say in the 9th line down what I had in mind there was the division of the flow or the proportion in these parallel circuits.

Q. Well, these exhibits that you referred to were based on certain figures, and when you referred to the computations you were assuming them to be correct. You meant you had no quarrel with the computation, is that right?

A. The work that I did here on the stand, the calculation that I made here?

Q. No, I am not referring to that at all. I am just

referring to your statement which has to do with the computations.

MR. McALLISTER: I think the witness has made his position perfectly clear, Mr. Examiner. I don't have any idea what Mr. Paxson is trying to get him to say, but he has answered the question as it has been put.

EXAMINER SPENCER: I understood the witness did not say which computation he referred to, and I would like to know myself. I do not know what is in that 9th line. I would like to have the witness read that. What is the question?

THE WITNESS: Well, the question is, "That is true, but nevertheless, in the consideration of the practical problem whether or not energy from a common point will flow out over available circuits does not require this complicated computation that you have referred to for the solution of that problem, does it?"

BY EXAMINER SPENCER:

Q. Now what is the computation you referred to?

A. The computation that Mr. McAllister referred to was, I had talked about, the previous answer: "Well, of course amperes is not a sole function of energy. You must enter into that equation, the angle of lag and lead."

And, in order not to gum this proceeding up more than necessary, I made the statement that as far as the division, the proportion of the energy in these circuits, the way it divided, that I was willing to accept, I stated as far as the division of the flow is given in one of your exhibits, I have no quarrel about the computation of the Commission's engineers in it. I had reference to an exhibit there that had a lot of arrows on it, and had a lot of amperes and tables and one thing and another. I didn't

think it was important in this case. I was willing rather than fuss with it, I was willing to let it go as being correct.

BY MR. PAXSON:

Q. But these computations are based on certain readings contained in certain exhibits which were introduced. You did not mean thereby to state you accepted the readings as correct, did you?

A. No, the only thing I was willing to accept, as I stated, the proportion of amperes in these four parallel circuits, the relation of power in each one of these four circuits, I didn't consider it was material and I didn't want to go through a lot of complicated calculations.

MR. PAXSON: That is all.

EXAMINER SPENCER: Does that conclude your redirect?

MR. PAXSON: That is all.

EXAMINER SPENCER: Do you wish to ask any questions, Mr. McAllister?

MR. McALLISTER: Just one moment, please. (After a pause:) I have no further questions, Mr. Examiner.

EXAMINER SPENCER: You may be excused, Mr. Sibley.

(Witness excused.)

EXAMINER SPENCER: Call your next witness, Mr. Paxson.

MR. PAXSON: If the Commission please, I have no further witnesses.

EXAMINER SPENCER: Do you have any further evidence, Mr. McAllister?

MR. McALLISTER: What are you going to do about your dial, Mr. Paxson?

MR. PAXSON: I have already offered and received permission to substitute therefor a photostatic copy, which I expect to do.

MR. McALLISTER: I think there was a subsequent ruling.

MR. PAXSON: I don't think there was a subsequent ruling. The Examiner did say at the beginning of the hearing yesterday morning he wanted to consider the form of certification of the photostatic copy.

EXAMINER SPENCER: Do you want to be heard on that, Mr. McAllister?

MR. PAXSON: I think the dial has been entirely substantiated by the testimony offered through the Commission by Mr. Bass.

EXAMINER SPENCER: I was going to say the Commission's counsel has used it. I would assume he would want it in evidence, or is that wrong?

MR. McALLISTER: No, that is not wrong. I just want to clear it up, how it is going to be put in. I wasn't raising any question about it.

EXAMINER SPENCER: The ruling on this question is temporarily deferred.

Are there any other witnesses, Mr. McAllister?

MR. McALLISTER: Yes, I have, Mr. Examiner. I have just said to Mr. Paxson we can't reasonably assemble the material we want to put in on rebuttal and to proceed now will put in matters that we could, if given second thought, we would probably leave out and probably will, but Mr. Paxson says how about dis-

posing of this question which you have reserved for ruling with respect to the application of the New Jersey Power & Light Company pending before the Securities and Exchange Commission. We must dispose of that, and that much progress could be made and we could recess until tomorrow morning, if that is agreeable.

EXAMINER SPENCER: All right, we will dispose of that.

MR. PAXSON: I would like to make a further statement on that. You gave this morning and last night to prepare ourselves to do so, and while I think I have made a rather complete statement, I would appreciate the opportunity of making further comment.

EXAMINER SPENCER: I will hear from you, Mr. McAllister.

MR. McALLISTER: Do you desire to hear from me first?

EXAMINER SPENCER: Yes. I do not wish to get too much in the record, but only to show how it is involved in this case.

MR. McALLISTER: Mr. Examiner, the application filed with the Securities and Exchange Commission relates to the acquisition of New Jersey Power & Light Company of some 12,000 shares of Jersey Central stock. That number of shares, I think, represents approximately 67 per cent plus.

EXAMINER SPENCER: Are those shares the ones that have already been acquired?

MR. McALLISTER: No, I will cover that if you will give me an opportunity, Mr. Examiner.

EXAMINER SPENCER: All right, proceed.

MR. McALLISTER: New Jersey Power & Light Company is seeking authority to acquire 712,411 shares of stock of Jersey Central.

In this proceeding we have under consideration the acquisition of certain shares of stock by New Jersey Power & Light Company, that is shares of stock of Jersey Central Power & Light Company by New Jersey Power & Light Company, the number as I recall it is 411,350 or 412,350.

MR. PAXSON: You mean the ones that are now the subject of this issue?

MR. McALLISTER: Yes.

MR. PAXSON: 341,350.

MR. McALLISTER: 341,350?

MR. PAXSON: Yes.

MR. McALLISTER: That 341,350 represents 32 per cent of the total outstanding capital stock of the Jersey Central Power & Light Company, 32 per cent plus. So, that the number of shares involved in this proceeding plus the number of shares involved in the proceeding before the Securities and Exchange Commission represents 100 per cent of the capital stock of the Jersey Central Power & Light Company. Now there may be a few shares, qualifying shares, they have mentioned nine shares that are directors' qualifying shares. I haven't attempted to add up those figures, but it makes no difference, it is so near 100 per cent, it can not be disputed.

EXAMINER SPENCER: That is all right.

MR. McALLISTER: In the application before the Securities and Exchange Commission the New Jersey Power & Light Company made certain state-

ments under oath, one of them is that they have acquired this capital stock with which this proceeding is concerned. They related there the circumstances under which it was purchased. They relate the circumstances which induced the purchase because, I presume, the reasons given for wanting to purchase two-thirds is about the best indication that you can get of their reasons for wanting to purchase one-third.

Then, speaking of the physical properties, they describe those and state under oath in the application that a certain map, Exhibit H, was filed as a part of the application, showing the area served by the various companies, New Jersey Power & Light Company and Jersey Central Power & Light Company. Also Staten Island Edison Corporation, and shows their principal transmission lines.

I didn't know at the beginning of this proceeding there was a question about that and I don't know that there is now except that it has been indicated there was a question whether or not these circuits on Staten Island are transmission lines or not. In this statement the statement is very clearly made that they are transmission lines.

I have read all of the application which contains many statements which relate to the facts which are important in connection with the consideration of the matters that are before the Federal Power Commission. It is a sworn statement of New Jersey Power & Light Company, respondent in this proceeding. The statements therein made should, in my opinion, be accepted as admissions on the part of New Jersey Power & Light Company.

The part which I have asked be incorporated in the record in this case is not voluminous because I have said that I was not interested and did not ask that that part of the application which set forth and

contained the indentures, articles of incorporation and the like be included. In fact I said I would prefer to have it excluded.

Furthermore, early in the proceeding I did discuss the matter with Mr. Paxson and told him that before the end of the proceeding I intended to offer it by reference in the record. In fact I asked him if he had a copy of it, that I would very much appreciate receiving it, but I didn't have any occasion to discuss it further with Mr. Paxson. However, I know how valuable these documents are, and when I say valuable, it is an expensive proposition and the company doesn't ever print more than their requirements and when I made the request of Mr. Paxson I didn't feel at all certain he had an extra copy. I was asking for it merely if it could be made available. I am not bound by that.

So, with all other things taken into consideration, it seems to me an application which should be admitted, particularly under the circumstances when it relates to the acquisition of the balance of the very stock we have under consideration and must necessarily contain facts that are pertinent to the issues which we have before us.

Now those issues are not confined just solely and only to the question of whether or not one company or another is a public utility within the meaning of the Act. It covers the sphere of the acquisition of this stock and there are other matters than just that utility status involved, particularly the facts relating to the acquisition they are setting forth in that application on file with the Securities and Exchange Commission, and I am certain that the information contained therein will be valuable and helpful to the Commission. It certainly will be valuable and helpful to

me in knowing what the real facts are regarding some parts of this transaction.

EXAMINER SPENCER: Now, did I understand you to say that they do refer to this stock they have already acquired in this application?

MR. McALLISTER: Oh, yes, they do.

EXAMINER SPENCER: Mr. Paxson, what do you have to say?

MR. PAXSON: Mr. Examiner, I can't state whether they do or not, because I am not acquainted with the application, don't know anything about it, except as I stated yesterday that I know the application has been filed.

Now, Mr. McAllister states that certain statements are contained therein which set forth facts and circumstances under which this 341,350 shares were acquired. If that is true and it is pertinent, then he should offer those particular portions. On the other hand, I contend and now deny the jurisdiction of this Commission to investigate or to go into at this time anything relating to the circumstances under which that stock was acquired. This Commission has now the direct issue before it as to the public utility status of Jersey Central Power & Light Company. This is not an application for any approval of the acquisition of those shares. If and when it, is determined this Commission has jurisdiction, then it may properly go into those facts and circumstances and conditions, but there is a preceding question which must be determined, and that is purely the question of the jurisdiction of this Commission over Jersey Central Power & Light Company. If it has no jurisdiction, then the acquisition was legal and it is of no consequence to this Com-

mission what those facts, circumstances and conditions are.

I am not down here today to combat, approve or establish what those facts, circumstances or conditions are, because I question the jurisdiction of this Commission at this time to go into that inquiry.

Now then, I want it understood distinctly, and I know it is, that I am making objections not only on behalf of New Jersey Power & Light Company, but also on behalf of Jersey Central Power & Light Company.

Now Jersey Central, as Judge Autenrieth stated yesterday, is not a party in any way, shape or form to this application which is now proposed to be introduced as testimony. Mr. McAllister stated yesterday Jersey Central Power & Light Company came in as an intervenor. He argued they had no standing apart from the proceeding instituted, they had no individual rights apart from the rights of the others, they had no issues separate and distinct from the respondent. I am reading practically from the record of your argument so the Examiner will have it before him.

Now my answer to that in behalf of Jersey Central Power & Light Company is simply this, the Jersey Central Power & Light Company came into this proceeding because this Commission served it with notice of this proceeding, stated it was about to enter an investigation to determine the status of the Jersey Central Power & Light Company. This is the primary question, the status of the Jersey Central Power & Light Company on March 14, 1938.

If Jersey Central Power & Light Company had not come in, had not attended, had not intervened, and the status of a public utility had been fixed on them, in view of the fact this Commission served notice on them, they might have been estopped to deny

it. Now, they are in and have been admitted by ruling of this Commission to be in.

Now to admit any statement made ex parte by New Jersey Power & Light Company in a different proceeding arising subsequent to the issues here defined is proof of no material fact which might have a bearing in determining the status of Jersey Central Power & Light Company is manifestly improper. Such statements are not proper evidence and are pure hearsay. Jersey Central Power & Light Company is in no way a party and can not possibly be bound thereby.

On the other hand, if the statements are not material, then certainly this large record should not be admitted. If Jersey Central Power & Light Company is not bound by this record, and I think I can state without any possibility of contradiction, if it is admitted, and if it ever goes to court, it will be thrown out. If Mr. McAllister wants to bring about that condition, he will accomplish nothing, for Jersey Central Power & Light Company is not bound. If Jersey Central Power & Light Company is not bound, then New Jersey Power & Light Company is not bound because the sole purpose in this proceeding is to determine the status of Jersey Central Power & Light Company on March 14, 1938, and it would be an absurdity to say that Jersey Central Power & Light Company was not actually a utility since it could not be bound by any of that testimony and then at the same time say it was a public utility so far as New Jersey Power & Light Company is concerned. The issue is one and the same at this time. It is purely jurisdictional, and moreover I wish to emphasize again this application before the SEC was filed in April, 1938, subsequent to March 14, 1938, and therefore can have no bearing whatsoever on whether Jersey Central Power & Light Com-

pany was a utility on that date. Moreover, and I think this is most important, this application to the SEC, on Mr. McAllister's own statement, is not concerned with securities the propriety of the acquisition of which without Federal Power Commission approval is at issue here. It is an application for approval of SEC for the acquisition of other and different shares which have not yet been acquired.

Now if Mr. McAllister insists on putting it in and tries to show that certain facts are correct, we have got to put in possible rebutting evidence on evidence explaining the statements. What kind of mess have we got? Is this Federal Power Commission going to try to insist upon them trying out the same issue? It is a total absurdity. Again it is a large mass of stuff I haven't seen and I could not accept as evidence. There might not be a word in it that is not true. I don't know. How can I be prepared to meet it. I can't possibly accept it. As I say, I have either got to let it go in or be prepared to rebut it. I am not prepared to rebut it. It is now a matter of allowing the whole thing which is absolutely incompetent, irrelevant and immaterial. To include it without showing the materiality is burdening the record down unduly and, as I stated before, it is going to cost us a lot of money and we object.

It is true Mr. McAllister stated a couple of days ago he intended to offer it and I advised him then I didn't think I would consent to it, I thought I would oppose it. He did ask if I had an extra copy and out of courtesy I would like to furnish him one. It is very expensive, but I had my associate, Mr. Weston, call up and they said they were shy themselves, and the only thing they had was the file copy which under all of their rules they don't dare let out. I have had no opportunity to see it. It is absurd right on its face.

As far as the question whether they are transmission lines or whether they are not, he says there are statements in there such lines were transmission lines. I don't question the statement. There probably is such a statement, but the purpose of introducing an application to the SEC for its approval for the acquisition of different shares, if they used the word transmission, engineers probably didn't prepare that and clerks did, and I would have to bring engineers to disprove it. That is not a material thing. I guess I have given you all of my objections.

EXAMINER SPENCER: Is it admitted by counsel that this application on file with the SEC is a public record?

MR. PAXSON: I don't even know that. I don't admit that.

EXAMINER SPENCER: Is it your understanding that it is?

MR. PAXSON: There has been no hearing on this. Maybe there has. Commission's counsel knows more about this than I do.

MR. McALLISTER: Mr. Examiner, an application filed with a duly constituted Federal Agency as required by law, when that statement is submitted under oath, particularly in connection with a part of the very same matter under consideration, the acquisition of common stock, the problem there is different.

EXAMINER SPENCER: That question would be determinable by the provisions of the law?

MR. McALLISTER: Absolutely, but I have two points I would like to mention to the Examiner, if I may. The first one, we tried out the question of jurisdiction in the Metropolitan Edison case and the Su-

preme Court of the United States said when this Commission undertook an investigation they were not to be limited by any objection to jurisdiction or otherwise.

MR. PAXSON: That Court didn't pass on your record. What a sad time you would have had if they did.

MR. McALLISTER: As far as this case is concerned we are in the same position.

MR. PAXSON: I want to make one other statement.

MR. McALLISTER: I want to finish.

MR. PAXSON: You certainly have the right to.

EXAMINER SPENCER: Proceed.

MR. McALLISTER: The other statement I wish to make is this, to repeat what I said yesterday when an intervenor comes in on a petition where he requests that he be permitted to appear and participate and protect his rights, the granting of that petition can not in any way limit the scope of the proceeding in which he seeks to intervene.

EXAMINER SPENCER: I don't think it limits the scope, but do you think he would be bound by what a third party would say?

MR. McALLISTER: If he comes in and submits.

EXAMINER SPENCER: I don't mean that.

MR. McALLISTER: There are two horns to that dilemma, Mr. Examiner, and I say under other circumstances he comes in here, he has a right to object and if as a matter of fact in this proceeding it was not

valid and admissible, not measured by what he thinks is his narrow interest in the proceeding, but measured by the scope of the proceeding in which he is intervening, and that is what determines the scope of the thing, and when he is in there and subject to jurisdiction and came in voluntarily, he is bound by it regardless of the application of the strict rules of law. In a proceeding in which he was the only party it might not be admissible.

EXAMINER SPENCER: You don't mean to say the rules of evidence in court do not apply in such cases when the admission of certain statements would apply against one party and not apply against another party? That is true even in criminal practice.

MR. McALLISTER: It all depends upon the question of how the party came into the proceeding. If you go into a civil court as an intervenor and submit yourself to the jurisdiction of the court you have some rights that are not measured exactly by the scope of the court's authority over the defendant, but generally speaking when you come in as an intervenor and submit to the jurisdiction of the court, you submit to the jurisdiction of the court for all purposes the law provides, and the jurisdiction of the court permits in so far as the original proceeding is concerned.

EXAMINER SPENCER: Do you wish to say something else, Mr. Paxson?

MR. PAXSON: You asked whether it was a public record. My answer is I don't know and still do not know. If it were a public record that is no reason for introducing it. We have thousands of public records on file. Are we going to bring them in because they are public records? Some materiality must be shown. The issues so far as New Jersey Power &

Light Company and Jersey Central Power & Light Company are concerned are plainly coincident. It is the status of a public utility—

EXAMINER SPENCER: (interposing) The Examiner appreciates what counsel for Commission and counsel for respondent said, and I will make my ruling on that tomorrow morning. In the meantime I want to ask counsel for respondent and counsel for the Commission to verify the photostatic copy of the plate which has been delivered up here and be prepared to say tomorrow morning whether they consider it a facsimile sufficient to be introduced.

MR. McALLISTER: I am perfectly willing to have it introduced now.

MR. PAXSON: All right, it is satisfactory to us.

EXAMINER SPENCER: Let the record show that photostatic copy of the plate heretofore identified as being the face of a type of ammeter similar to those used by the Public Service Electric and Gas Company is received as Respondent's Exhibit No. 9.

(The photostat referred to was marked Respondent's Exhibit No. 9 and received in evidence.)

EXAMINER SPENCER: We will recess until 10:30 o'clock tomorrow morning.

(Whereupon, at 4:50 o'clock p. m., an adjournment was taken until 10:30 o'clock a. m., Friday, October 7, 1938.

Washington, D. C.,
Friday, October 7, 1938.

The hearing in the above-entitled matter was resumed, pursuant to adjournment, in Room 1201, Hurley-Wright

Building, 1800 Pennsylvania Avenue, N. W., Washington, D. C., at 10:30 o'clock a. m.

Before:
Carroll B. Spencer, Trial Examiner

Appearances:
As heretofore noted.

PROCEEDINGS

EXAMINER SPENCER: The hearing will be resumed.

Gentlemen, upon the question of the admission of the application filed by the New Jersey Power & Light Company with the Securities and Exchange Commission,—

MR. PAXSON: (interposing) What is that?

EXAMINER SPENCER: I was saying that upon the question of the admission of the application filed by the New Jersey Power & Light Company with the Securities and Exchange Commission, the Examiner rules—

MR. PAXSON: (interposing) I was wondering if I could make a very short statement in addition to what I already said, which is new information I have obtained.

EXAMINER SPENCER: Yes.

MR. PAXSON: Mr. McAllister was arguing for the admission of this application. Of course I had no knowledge of its contents, never having seen it, and one of his arguments that it be admitted was it contains a statement of the facts, manner, circumstances, and conditions by which the stock now under consideration was acquired.

Since yesterday afternoon I was in touch with one of my associates in New York and he states there was not contained therein surrounding the facts, circumstances and conditions under which the stock was acquired, other than the statement it has been acquired. Of course I have already admitted that on the record and it is also admitted in the sworn answer. If that is a material matter in your mind relating to this question I merely give it to you for your information.

EXAMINER SPENCER: Gentlemen, my ruling is that such parts of the application as relate to the issues involved in this hearing may be admitted and counsel for the Commission will be requested to refer to such parts as, in his opinion, have a bearing on that question.

MR. McALLISTER: It is that part I indicated yesterday, Mr. Examiner. There must be some continuity in the manner in which it is offered. You can't pick out excerpts and attempt to make use of those. It isn't fair to the applicant nor respondent to expect the Commission to consider only an excerpt or a paragraph out of a whole document.

EXAMINER SPENCER: I don't care whether or not the paragraphs are cited, but the point that I make is that you refer to the portions you desire admitted in that application which have a bearing upon this case, and then those parts of the application which touch upon this question will be admitted.

MR. McALLISTER: Just as a practical matter, how am I going to do it, take a paragraph out?

EXAMINER SPENCER: No, I was saying I don't want you to take a paragraph out, but the questions covered in that application are the ones I am talking about that I want you to point out and designate. In other words, if you don't do that, I would have to read the whole ap-

plication and determine whether or not it is admissible. If there are certain questions covered in that application and you know what they are, if you will state what they are, then I will admit that part which treats of this question.

MR. McALLISTER: I certainly can't understand the ruling of the Examiner. Here is an application that sets out certain circumstances, an application is filed with the Securities and Exchange Commission seeking authority to acquire this additional two-thirds of the stock of Jersey Central Power & Light Company. They set forth the circumstances under which the 341,350 shares were acquired which is involved here.

EXAMINER SPENCER: That is just the question.

MR. McALLISTER: The statement has been made there is no such thing in there. It is covered in there.

EXAMINER SPENCER: If it is, and you want to point it out and read it into the record, that will be one question. If it is not, I am going to have to read the application myself to determine—

MR. McALLISTER: (interposing) Pick out a paragraph?

EXAMINER SPENCER: I don't care whether you pick out a paragraph, a page or a sentence. If there is something that will cover that question I will admit that part of it.

MR. McALLISTER: If you introduce a paragraph you are picking something out of the application. An application is only understandable when considered within its four corners. When you introduce a document you do so because something is contained in there that is pertinent, and you can't pick out that one sentence and put that in.

EXAMINER SPENCER: The ruling of the Examiner is you can specify the question which was involved and

the statements in that application which relate to the question, and then I can determine whether it ought to be admitted. If counsel for the Commission doesn't wish to do that, then I will take the time to determine for myself and reach a conclusion whether or not the whole application can be admitted, but without knowing what is in the application I can not admit it.

MR. McALLISTER: My request is the entire document be received as I indicated it yesterday, and my own understanding is that without the document as a whole I could not reasonably rely upon a sentence or a paragraph or some particular statement and then contend that is wholly unrelated to the balance of the application.

EXAMINER SPENCER: Then, the Examiner's ruling is he will not grant that request, but will take the time to determine what is in the application and direct such parts as are applicable to be admitted.

MR. McALLISTER: May I have an exception to that ruling?

EXAMINER SPENCER: Give the counsel for the Commission an exception to that ruling.

MR. McALLISTER: Do I get an exception?

EXAMINER SPENCER: Note an exception to that ruling for counsel for the Commission.

MR. PAXSON: Just for the sake of clarity, I understand the question on the application has not been ruled upon and it is not admitted at the present time?

EXAMINER SPENCER: It is not admitted.

MR. PAXSON: And is no part thereof at the present time?

EXAMINER SPENCER: That is right.

Call your witness, Mr. McAllister.

MR. McALLISTER: At this time, Mr. Examiner, I would like to offer for the record an agreement between Philadelphia Electric Company, Pennsylvania Power & Light Company, and Public Service Electric and Gas Company, the agreement being dated September 16, 1927, with the amendments of March 3, 1932, January 1, 1934, April 1, 1935, and identified in the files of the Commission as Public Service Electric and Gas Company F. P. C. rate schedule F. P. C. No. 3. Also supplements 1 to 6 inclusive relating to that same rate schedule, F. P. C. No. 3.

That is the agreement between Philadelphia Electric Company, Pennsylvania Power & Light Company and Public Service Electric and Gas Company which created or established the power pool about which various witnesses, or to which various witnesses have referred.

I ask that that agreement between the parties and the supplements thereto be received in evidence by reference. That agreement is a duly filed rate schedule submitted to the Federal Power Commission in accordance with the requirements of the Federal Power Act, and is an official document of the same nature as any other tariff on file with a Commission specifying the rates and the conditions under which electric service or interchange of power between the parties may be carried on.

EXAMINER SPENCER: Mr. Paxson.

MR. PAXSON: Objected to on behalf of both of the parties respondent as incompetent, immaterial and irrelevant. It does not appear that either of the parties respondent are in any way parties to that agreement. It has nothing to do, therefore, with any of the issues in this case and has no probative value. It is also not the best proof. There may be some subsequent agreement. I don't

know whether it represents the whole agreement or whether it does not.

EXAMINER SPENCER: The objection of counsel for the respondent and intervenor is overruled and the agreement will be incorporated in the record by reference.

MR. PAXSON: I wish an exception on that.

EXAMINER SPENCER: Exception noted for counsel for the respondent and intervenor.

MR. PAXSON: Off the record.

EXAMINER SPENCER: Off the record.

(Discussion off the record.)

EXAMINER SPENCER: On the record, Mr. Reporter. The Examiner wishes to state that counsel for the respondent and intervenor will be granted an opportunity to examine this contract and offer in evidence any proof or any rebuttal evidence that he wishes or that he sees fit, of course.

MR. McALLISTER: I likewise offer in evidence, Mr. Examiner, the agreement between New Jersey Power & Light Company, and Metropolitan Edison Company, bearing date of March 3, 1930, and identified in the files of the Federal Power Commission of New Jersey Power & Light Company rate schedule F. P. C. No. 1.

Also an agreement between New Jersey Power & Light Company and Central Hudson Gas and Electric Company, which agreement bears date of January 1, 1936, and is identified in the files of the Federal Power Commission as New Jersey Power & Light Company rate schedule F. P. C. No. 2.

I also offer in evidence the agreement between New Jersey Power & Light Company and Public Service Electric and Gas Company, bearing date of April 7, 1930 and identified in the files of the Federal Power Commission as

New Jersey Power & Light Company rate schedule F.P.C. No. 3.

MR. PAXSON: Pardon me, can these be offered separately so that I can get my objections in correct order, if there are any?

MR. McALLISTER: They are all three agreements, agreements with New Jersey Power & Light Company, and they all stand in the same position so far as I can see and that is the reason I grouped the three together. They are agreements between New Jersey Power & Light Company. The first one is with the Metropolitan Edison Company, the second one with Central Hudson Gas and Electric Company, and the third one is an agreement with Public Service Electric and Gas Company.

I offer these three agreements as described, Mr. Examiner, in evidence and ask that they be admitted by reference.

EXAMINER SPENCER: All right, sir.

MR. PAXSON: On behalf of the Jersey Central Power & Light Company I object to the admission of any and all of these agreements. Jersey Central Power & Light Company whose status is now to be determined is not a party in any of these agreements and anything contained therein can not in any way bind the intervenor, Jersey Central Power & Light Company.

As representing New Jersey Power & Light Company I object to the inclusion of these agreements on the ground they are incompetent, irrelevant and immaterial to the issue in this case, which is the status whether it is or is not a public utility. It is also an undue burden on the record.

Now with respect to the agreement between New Jersey Power & Light Company and Public Service Electric and Gas Company, what was the date of that agreement?

I thought we already had it in the record, the agreement between New Jersey Power & Light Company and Public Service Electric and Gas Company.

EXAMINER SPENCER: Read Mr. McAllister's statement.

MR. McALLISTER: I will state the agreement may be dated in 1930, but the important feature is it is now in effect.

MR. PAXSON: In other words I thought he had already introduced all the agreements between New Jersey Power & Light Company and Public Service Electric and Gas Company and I just plead surprise. It seems to me possibly I ought to have a right to look at it and inspect it to frame the proper objection. I don't know what it is.

EXAMINER SPENCER: You have that right and you will be afforded an opportunity to do so.

MR. McALLISTER: These agreements have the same status as any publicly filed tariff, whether with respect to railroad, gas, electric, utility or anything else. They are open to the public at the office of the filing company and open to the public in the office of the Federal Power Commission.

EXAMINER SPENCER: Yes, but in our procedure counsel for respondent is entitled to examine them to determine whether he wants to object or find a basis for objection.

MR. PAXSON: I admit they may be filed, may be publicly filed tariffs but the question is their materiality.

MR. McALLISTER: That is correct, and the movement of energy between these companies has been referred to time and again on this record and it is only proper that the record show the agreement between the parties which

covers that interchange of energy between the companies, and there is no agreement that I have offered here that does not refer directly to the movement of electrical energy as it has been referred to by witnesses on behalf of the respondent, the intervenor and the Commission. All of these agreements and this movement of energy have been referred to by all three parties.

EXAMINER SPENCER: Do you have that agreement here, Mr. McAllister?

MR. McALLISTER: We have it.

EXAMINER SPENCER: Do you wish to examine it now?

MR. PAXSON: I think possibly I was a little in confusion myself when I said I thought the agreement between New Jersey Power & Light Company and Public Service Electric and Gas Company had been introduced. I was then thinking of an agreement between New Jersey Power & Light Company and Jersey Central Power & Light Company. There has been no evidence admitted by anybody of an agreement between New Jersey Power & Light Company and Public Service Electric and Gas Company. I mean, no agreement has been offered.

MR. McALLISTER: No, there has not. I have checked there, and I don't think there is a possibility of duplication. There might be. There is an agreement between two parties and each company files that with the Commission and it is given a separate number under the file for each company, and I may have put in the same agreement by referring to it as Public Service Electric and Gas Company, and on the other hand the Jersey Central Power & Light Company, but I don't think I have.

EXAMINER SPENCER: Mr. Paxson, do you wish to examine it now?

MR. PAXSON: I don't think it is necessary for me to do so at the present time if Mr. McAllister wants to proceed. He has sent someone for them, hasn't he?

MR. McALLISTER: Yes, we have had them here most of the time during the hearing and have made reference to them.

MR. PAXSON: Then Mr. Examiner, you will reserve ruling?

EXAMINER SPENCER: I will reserve ruling.

MR. McALLISTER: I do know they are agreements presently in effect between the parties.

MR. PAXSON: And you know they are on file?

MR. McALLISTER: And I know they are on file.

EXAMINER SPENCER: All right, proceed, Mr. McAllister, we will rule on that later.

MR. McALLISTER: May we go off the record?

EXAMINER SPENCER: Off the record.

(Discussion off the record.)

EXAMINER SPENCER: On the record. Mr. Paxson.

MR. PAXSON: I have no further objections to the offer other than those that have already been incorporated in the record with respect to the agreement between Philadelphia Electric Company, Pennsylvania Power and Light Company and Public Service Electric and Gas Company dated September 15, 1927, and I understand your Honor has already ruled on that and I take an exception.

EXAMINER SPENCER: That is the first one.

MR. PAXSON: Yes, that has already been admitted over my objection.

EXAMINER SPENCER: Do you have an objection to the last four?

MR. PAXSON: As to the other three I have no further objections to offer except this objection I have already made as to the agreement between New Jersey Power & Light Company, which is expressed in the form of rate schedule F. P. C. No. 1, nor with respect to agreements dated April 7, 1930, between New Jersey Power & Light Company and Public Service Electric and Gas Company. I do offer this further objection, however, to the admission of a purported agreement, or it was introduced as an agreement between Central Hudson Gas and Electric Company and New Jersey Power & Light Company, which is labeled rate schedule No. 2 of New Jersey Power & Light Company, in that it appears to be merely a statement of the understanding under which electrical energy is interchanged and there is stated at the bottom there of this statement:

> "This written statement of the understanding under which electrical energy is interchanged and upon which settlement is made between Central Hudson Gas and Electric Corporation and New Jersey Power & Light Company is prepared for filing with the Federal Power Commission as required under Section B of its Order No. 36 and does not constitute a contract between said companies imposing any obligations upon them in respect to future interchange of relations."

As the Commission knows this was done, as it states, in response to a certain order. A statement prepared by the parties as to an existing arrangement doesn't necessarily constitute the entire agreement between the parties. There may be other circumstances and conditions and so forth and my objection is this does not necessarily constitute the contract between all parties. I don't know. I know in practice most of the companies did not have any written agreement when they complied with the Commission's request, and to the best of their ability they wrote up the statements which gave just in general what the arrangement was, but these memoranda don't necessarily comprise

the whole of the agreement and the understanding between the parties as has already been testified to at this hearing where a similar document was admitted.

MR. McALLISTER: I believe you have reference there to a document which you offered for the record yourself?

MR. PAXSON: That is correct.

MR. McALLISTER: With respect to the agreement between Public Service Electric and Gas Company and Staten Island Edison Corporation?

MR. PAXSON: That is correct, but they are very skimpy in their terms and there are various things that come up from time to time that have to be settled and we have had testimony that was done in this case, not in any way that these side arrangements in any way conflict with that, but they are not even governing, and you can always introduce oral evidence—

EXAMINER SPENCER (interposing): The agreements offered by counsel for the Commission will be admitted by reference and the objection of counsel for the respondent and intervenor as stated is overruled.

MR. PAXSON: And exception allowed?

EXAMINER SPENCER: Exception noted.

MR. McALLISTER: During the course of the hearing, Mr. Examiner, I asked that the reports filed with the Federal Power Commission by Jersey Central Power & Light Company, New Jersey Power & Light Company, Public Service Electric and Gas Company and Staten Island Edison Corporation be received in evidence. The reports to which I made reference were annual reports of those four companies and the report supplemental to the annual report designated as System Power Statement Form 64, which contains statistical data regarding the operations during the year for which annual report is made.

I believe at the time I offered those that I stated that before the conclusion of the hearing I would designate the pages in those reports which I would ask to be received in evidence so that respondents would know exactly, respondent and intervenor would know exactly to what parts of those reports reference was made and that there would be, therefore, no necessity for inclusion in the record under any circumstances all other pages in the report.

Now the pages which I desire to designate, are—

MR. PAXSON (interposing): Pardon me again. Can't we take each one separately? If I have to carry each one in my mind it will be difficult to keep track of them. We may have an objection for one and not for the other.

EXAMINER SPENCER: We will get to that, Mr. Paxson.

MR. McALLISTER: The annual report—

EXAMINER SPENCER (interposing): Were those reports offered on condition the pages were to be designated and admitted?

MR. McALLISTER: No, they were not.

EXAMINER SPENCER: You are now offering the pages which you propose to read now from these reports in evidence?

MR. McALLISTER: I am limiting my offer now to these pages. These reports have been received in evidence. I think all of the reports of these four companies have been received in evidence.

MR. PAXSON: I don't have any such recollection.

MR. McALLISTER: The record will speak for itself, and if by chance—

MR. PAXSON (interposing): If you are going to offer them, offer them.

MR. McALLISTER: If by chance there is some one of them that has not been offered I now offer these parts.

EXAMINER SPENCER: All right. Now what year is that for?

MR. McALLISTER: That is for the year 1937. The annual report is for the year 1937, and I offer pages 512—

EXAMINER SPENCER (interposing): Which one is that, all of them?

MR. McALLISTER: The same page contains the same information for all parties.

EXAMINER SPENCER: Each report, one or all?

MR. McALLISTER: All four.

MR. PAXSON: Will you name the four?

MR. McALLISTER: Have the reporter read that, please.

EXAMINER SPENCER: Read the statement of Mr. McAllister, naming the companies.

MR. McALLISTER: Staten Island Edison Corporation, Jersey Central Power and Light Company, New Jersey Power and Light Company and Public Service Electric and Gas Company.

EXAMINER SPENCER: Let the record show counsel for the Commission offers the following pages of the annual reports of those four companies.

MR. McALLISTER: F. P. C. No. 1, the number of the report.

EXAMINER SPENCER: Now you proceed.

MR. McALLISTER: The pages are 512, 513, 522, 523, 524, 531, and 532.

I also wish to add this statement, whenever with re-

spect to any page the space available on that page was not sufficient for a full statement required and supplemental sheets are inserted, it is to be understood that all such supplemental pages are to be considered as being introduced in evidence by reference as well as the pages appearing before of which they are a part.

What I have reference to they have page 522-A, B, C and so forth. There is no question about it?

EXAMINER SPENCER: All right.

MR. PAXSON: Now on behalf of both Jersey Central Power & Light Company and New Jersey Power & Light Company I object to the inclusion in this case of any and all parts of any reports filed by Staten Island Edison Corporation and by Public Service Electric and Gas Company. Any statements made by those companies which are not parties to this proceeding can in no way, shape or form bind or be any legal evidence against these two parties respondent. It is not the best proof and in any event it is pure hearsay, incompetent, immaterial and irrelevant and I object to it.

As to the report filed by the Jersey Central Power & Light Company, on behalf of New Jersey Power & Light Company I object to the inclusion of that report on the ground that New Jersey Power & Light Company is not a party to that report, has never seen it, does not know its contents, and can not be bound thereby. It is not the best proof and they can not be bound by the facts contained therein. My last statement it is not the best proof is ground for an objection on the part of New Jersey Power & Light Company itself, and I interpose an objection on that ground.

Now on behalf of Jersey Central Power & Light Company I object to the inclusion in this record of any data from the report of New Jersey Power & Light Company because Jersey Central Power & Light Company is not a

party to that report, can not be bound in any way by any facts stated therein, it is pure hearsay and incompetent, immaterial and irrelevant, and on the ground it is incompetent, immaterial and irrelevant, I have an objection on behalf of New Jersey Power & Light Company. It is not the best evidence of any facts or any evidence which may be stated therein.

EXAMINER SPENCER: Objection of counsel for respondent and intervenor is overruled and the pages of the reports are admitted in evidence.

MR. PAXSON: And exception noted?

EXAMINER SPENCER: And exception noted by respondent and intervenor.

MR. McALLISTER: Likewise during the hearing, Mr. Examiner, I offered the reports of New Jersey Power & Light Company and Jersey Central Power & Light Company, Public Service Electric and Gas Company and Staten Island Edison Corporation, which statements are filed with the Federal Power Commission on Form F. P. C. No. 64, for the year 1937, and I wish to designate in those reports pages 4, 5, 18, 22, and 28, and ask that they be received in evidence by reference.

EXAMINER SPENCER: Any objection?

MR. McALLISTER: Previously with respect to these reports I offered the entire report. I am now limiting that request and offering and asking that the parts of this report as indicated by the pages which I have referred to be received in evidence by reference.

EXAMINER SPENCER: Any objection?

MR. PAXSON: If the Commission please, I am unable to identify in my mind these reports from those previously offered. You offered them for 1937, and then you—

MR. McALLISTER: (interposing) The real force of my offer at the present time is to limit my prior offer to these particular pages. The report, as such, goes in, the verification and those matters which are pertinent to the determination of the authenticity of the report are in, but I am limiting, as far as I am concerned, the parts of the reports to the pages which I have designated.

MR. PAXSON: Mr. McAllister, I appreciate that very much, and would be very grateful if I really thought these reports had been admitted in evidence. I didn't understand any had been admitted in evidence, although some testimony has been permitted to be utilized over my objection by witnesses testifying, they have referred to reports over my objection. I may be in error. I did not know the entire report had been offered in this case previously up to this time.

EXAMINER SPENCER: My recollection is that counsel for the Commission offered them in evidence and stated at a later time in the proceedings he would specify the pages which were considered pertinent.

MR. PAXSON: Then counsel for respondents was not quite as alert as he should have been, if your recollection is correct. I now offer the same objection to the inclusion of these reports I offered heretofore with respect to the others. Mr. McAllister's statement was not responsive to my inquiry. I can not identify what he is offering. He previously offered pages for 1937 and now offers other pages for 1937. Are those different pages of the same report, or what?

MR. McALLISTER: They are different pages of different reports, one is Form 64 and the other is F. P. C. No. 1.

MR. PAXSON: That is what I wanted to know. This is 64 and the other is 1 for the same year.

EXAMINER SPENCER: Objection of counsel for respondent and intervenor overruled and exception noted, and the parts of the documents specified by counsel are received in evidence by reference.

MR. McALLISTER: Information contained on Exhibit No. 7, was derived from monthly reports filed with the Federal Power Commission by the utilities operating in the state of New Jersey showing interstate transfer of energy for the period January 1, 1938 to and including July, 1938. That information was supplied to the Federal Power Commission in response to an order of the Federal Power Commission and was embodied on reports filed on forms designated as Federal Power Commission, F. P. C. Form No. 46. I am merely indicating the source of the information. I am not asking those reports be received in evidence, Mr. Examiner, but I wanted to state clearly what the source of information was.

EXAMINER SPENCER: Didn't the witness testify the source of the information?

MR. McALLISTER: Yes, he did, Mr. Examiner, and I am not going to encumber the record with those reports.

EXAMINER SPENCER: Do you have anything else?

MR. McALLISTER: Yes. Now, for the years 1934, 1935 and 1936, I offer the annual reports of New Jersey Power & Light Company, Jersey Central Power & Light Company, Public Service Electric and Gas Company and Staten Island Edison Corporation in evidence by reference.

These annual reports being embodied on what is known as Form 11-127, and I particularly designate as the pages to which reference is made as pages 6, 7, 9, 28, 30, 31, 32, 33, and 34 of those annual reports. I ask that they be received in evidence by reference. With respect to those pages I ask that whenever with respect to any page the

space available was not sufficient, for a full statement required and supplemental sheets were inserted it would be understood such supplemental pages are to be considered as having been designated and received in evidence, so that the information with respect to that particular page may be complete.

MR. PAXSON: If it please the Commission, I have the same objection to that I have previously stated in full and in detail to the inclusion of these reports.

EXAMINER SPENCER: All right.

MR. PAXSON: I don't want to take up the time to specifically take them all up. I have a further objection to the inclusion of reports for 1934, 1930 and 1934, prior to July 26, 1935 on the ground that such data is entirely too remote to in any way be any proof of the status of the condition today, and the Federal Power Commission had no jurisdiction whatsoever over these companies until the enactment of the Federal Power Act which was dated August 26, 1935.

MR. McALLISTER: Mr. Examiner, I have endeavored through various witnesses to determine the distance from the plant of the Jersey Central Power and Light Company at South Amboy to the Mechanic Street substation of the Public Service Electric and Gas Company. The witnesses who appeared on behalf of the Respondent and Intervener seemed to be unable to furnish that information.

MR. PAXSON: Didn't Mr. Crumley know? Did you ask him?

MR. McALLISTER: I asked him and thought I got an answer, but when I read the record I found he limited it to the south bank of the Raritan River.

MR. PAXSON: I thought he did testify to that, but I don't know where, and I have not checked it myself.

MR. McALLISTER: I suppose I could have asked Mr. Bass yesterday but I did not expect to take him out of the field of the one subject.

The annual report filed by the Public Service Electric and Gas Company, FPC No. 1, on page 541, line 11, shows the distance from the Mechanic Street substation to the Raritan River as 1.2 miles.

The annual report of the Jersey Central Power and Light Company FPC Form No. 1, on page 549-A, on line 16, shows the distance from the South Amboy plant to the tie with Public Service Electric and Gas Company as being 0.93 mile, making a total distance from the plant at South Amboy to Mechanic Street substation of 2.13 miles.

I would like to have counsel for Respondent and Intervener agree to that as being the correct mileage. Otherwise I should be forced to ask that those pages be received in evidence.

Now, what is your thought?

MR. PAXSON: You will have to ask what?

MR. McALLISTER: Let those particular pages from the reports be received in evidence.

MR. PAXSON: As to that, of course, I would say that we have no objection to the correct distance being in the record, and I think it might be material in this case. I want to cooperate with you. Of course, I don't know whether the distance given in that report by the Public Service Electric and Gas Company is correct. But I am willing to agree to it, if we can show just by letter from Public Service Electric and Gas Company or by our engineers that it is different that that will be utilized. All we want is the correct distance.

EXAMINER SPENCER: Is Mr. Crumley here this morning?

MR. PAXSON: No, Mr. Examiner; he is not. I have no objection, if that is understood, if the Public Service Electric and Gas Company itself says that it is not correct.

MR. McALLISTER: I don't think it will vary by more than a few tenths; so I will go along. Everybody talks about two miles; but when you get them on the witness stand they say they don't know.

EXAMINER SPENCER: Let the record show that it is agreed by and between counsel for the Commission and counsel for the Respondent and Intervener that the distance between—

Mr. McAllister, will you stand the points?

MR. McALLISTER: The distance between the South Amboy plant of the Jersey Central Power and Light Company to Mechanic Street substation of the Public Service Electric and Gas Company at Perth Amboy is 2.13 miles, as shown by the reports of the two owning companies on forms FPC No. 1, filed with the Federal Power Commission for the year 1937.

EXAMINER SPENCER: Is that satisfactory?

MR. PAXSON: I stated that I am willing to let it go in unless upon check it may be determined that it is some other distance. If it is a slight matter I do not think it is material.

MR. McALLISTER: Will you be able to check that?

MR. PAXSON: I think we can check it. But I want to preserve my objection to the inclusion of any data from a report made up for one purpose to determine some possibly material and substantial facts to fix the status.

EXAMINER SPENCER: We never did finish the other. Let the record show that the distance between the two points named by Mr. McAllister is 2.13 miles, subject

to check and confirmation by the Public Service Electric and Gas Company.

MR. McALLISTER: They are not parties here.

MR. PAXSON: By Respondent.

EXAMINER SPENCER: I mean by Respondent.

MR. McALLISTER: Can you do that before the adjournment today?

MR. PAXSON: No; We cannot check it today. We do not have the data here. If we had, our witnesses would have given it to you. They will have to furnish other compilations by October 20th, and we can fix that as the date.

MR. McALLISTER: Mr. Examiner, regardless of all that has been said, I now offer for the record Page 541 of the annual report of the Public Service Electric and Gas Company, FPC Form No. 1 showing that the distance from Mechanic Street substation to the tie-in with the Jersey Central Power and Light Company at the Raritan River is 1.2 miles.

I also offer in evidence page 540-A of the report of the Jersey Central Power and Light Company, showing that the distance from the South Amboy plant of the company to the tie-in with the Public Service Electric and Gas Company at the Raritan River is 0.93 mile.

I ask that these pages be received in evidence insofar as they indicate the distance between the points named and as reported by these respective companies in their annual sworn reports to the Federal Power Commission.

EXAMINER SPENCER: For what year?

MR. McALLISTER: For the year 1937. These pages, of course, are in addition to the pages of those annual reports which I offered in evidence previously.

MR. PAXSON: As to the distance between the South Amboy plant and the interconnection with the Public Service Electric and Gas Company at the south bank of the Raritan River I am willing to stipulate that the distance is 0.93, because we have had testimony offered on this plant, that it was approximately 7/8 mile. So there is no necessity to offer it. He may offer it if he pleases, but it doesn't cover anything but what is in the record. I shall not object to it as incumbering the record if it is offered. As to any data taken from the Public Service Electric and Gas Company report purporting to show the distance, I object upon the ground that those reports and any data contained therein are not binding in any way on the two respondents in this case and that the information is incompetent, irrelevant and immaterial and not the best evidence.

EXAMINER SPENCER: The objection of counsel for Respondent and Intervener is overruled, and the pages designated are received by reference.

(The documents above referred to were received in evidence by reference.)

MR. PAXSON: And we note an exception, Mr. Examiner.

EXAMINER SPENCER: An exception is noted for counsel for Respondent and Intervener.

MR. PAXSON: I might say that I am not merely technical. I think the distance appears to be very short. I think they have left out the submarine cable in the distance, but I don't know. One of our engineers looked at a map and thinks so. But I cannot read a map on that small a scale.

EXAMINER SPENCER: You may proceed, Mr. McAllister.

Have you any further evidence, Mr. McAllister?

MR. McALLISTER: Yes, Mr. Examiner, I have, if you will indulge me for just a moment.

EXAMINER SPENCER: Very well.

MR. McALLISTER: I will now call Mr. Grimsley.

EXAMINER SPENCER: Let the record show that A. H. Grimsley is recalled by counsel for the Commission.

A. H. GRIMSLEY,

was thereupon recalled as a witness for and on behalf of the Commission and, having been previously sworn, testified as follows:

Direct Examination

BY MR. McALLISTER:

Q. Mr. Grimsley, you have testified previously in this proceeding and have been duly sworn?

A. That is correct.

Q. In the course of your testimony on direct you offered in evidence two exhibits which were received and marked as Exhibit 17 and 18. Isn't that true?

A. That is correct.

Q. Objection was made to the receipt in evidence of these exhibits because the information thereon related wholly to the year 1938. Have you prepared a supplemental exhibit showing similar information to that shown on Exhibit No. 17, Mr. Grimsley, for various days in the year 1937?

A. Such exhibits have been prepared under my direction.

Q. Let's take them one at a time. I show you an exhibit, Mr. Grimsley, and ask you if that exhibit shows for the year 1937 similar information to that shown for the year 1938 as recorded on Exhibit No. 17?

MR. PAXSON: Just a minute, please. May we see a copy of it?

MR. McALLISTER: Yes. But let him identify it. I wanted to have him identify it before we pulled them apart.

EXAMINER SPENCER: The statement you showed him is not an exhibit.

MR. McALLISTER: It is a statement. I used the word "exhibit" in a non-professional manner.

BY MR. McALLISTER:

Q. Mr. Grimsley, is it a fact that the information which you showed—

MR. PAXSON: May we have just a moment to look at this so that we can understand the question? We cannot understand this mass of figures on the instant.

MR. McALLISTER: I was going to identify it as being the same information.

MR. PAXSON: All right. I thought you were going to ask a question.

MR. McALLISTER: I will identify it thoroughly, and then you may have all the time you want.

MR. PAXSON: All right.

EXAMINER SPENCER: You may proceed.

BY MR. McALLISTER:

Q. Mr. Grimsley, is the statement which you have just identified a statement setting forth for the year 1937 information in the same detail and with respect to the same subject matter as that which is shown on Exhibit No. 17, which has been received in evidence in this case?

A. It is similar data compiled for certain periods during the year 1937.

Q. Does it show the same information that is shown on Exhibit No. 17 except for the different period?

A. That is correct.

Q. I mean the same character of information.

A. That is correct.

MR. PAXSON: Well, you may proceed, Mr. McAllister.

EXAMINER SPENCER: All right, Mr. McAllister, proceed, please.

MR. McALLISTER: Mr. Examiner, I offer in evidence the statement identified by the witness, and I ask that it be received as Commission Counsel's Exhibit No. 17-A.

EXAMINER SPENCER: Is there any objection, Mr. Paxson?

MR. PAXSON: I think I will offer an objection unless it is stated just where this data comes from. He says it was prepared under his direction.

MR. McALLISTER: I thought that was evident.

EXAMINER SPENCER: Proceed, please.

BY MR. McALLISTER:

Q. Mr. Grimsley, from what source was this information shown on the exhibit which I have just offered in evidence as Exhibit 17-A derived?

A. Taken from the records of the Public Service Electric and Gas Company.

Q. What records?

A. I think they are all confined to Mechanic Street substation records.

Q. The log sheets at the Mechanic Street substation?

A. That is correct.

Q. And that information was obtained under your direction by whom?

A. Mr. Woll.

Q. What are his initials?

A. They are L. B.

MR. McALLISTER: I will ask that the exhibit be received in evidence, Mr. Examiner.

EXAMINER SPENCER: Is there any objection, Mr. Paxson?

MR. PAXSON: I object to it unless the purpose of it is shown. It has not thus far been shown that it has any bearing on the issue now before us as to whether the Jersey Central Power and Light Company is a public utility.

EXAMINER SPENCER: What does the statement purport to show?

MR. McALLISTER: It merely shows for the year 1937 the same information that was shown on Exhibit No. 17 for the year 1938. It shows the information prior to the period when the transfer of the stock of the Jersey Central Power and Light Company was made to the New Jersey Power and Light Company, and coupled with Exhibit No. 17 it shows that that condition continued after the transfer of the stock. It shows a continuity of transaction between the movement of energy from the Staten Island Edison Corporation to the Mechanic Street substation.

EXAMINER SPENCER: All right. The objection of counsel for Respondent and Intervener is overruled.

The statement will be received in evidence as Commission Counsel's Exhibit No. 17-A.

(The document above referred to was received in evidence and marked Commission Counsel's Exhibit No. 17-A.)

BY MR. McALLISTER:

Q. Now, Mr. Grimsley, with respect to Exhibit No. 18, which shows information for the year 1938 only, did you also obtain information of a similar character for the year 1937, showing the movement of energy from Staten Island Edison Corporation to the Mechanic Street substation of the Public Service Electric and Gas Company and for the same identical period the movement of electric energy from Public Service Electric and Gas Company to Jersey Central Power and Light Company at South Amboy?

A. Yes; that is correct.

Q. Will you please state for the record, Mr. Grimsley, from what source this information was obtained for the year 1937?

A. This was taken from the log sheets of the Public Service Electric and Gas Company Mechanic Street substation.

Q. Those log sheets show, do they, the quantity of energy for various periods of time flowing from the Staten Island Edison Corporation to the Mechanic Street substation, and likewise the flow out of Mechanic Street to Jersey Central Power and Light Company?

A. That is correct.

Q. And it is that information that is recorded on this statement?

A. That is correct.

Q. Was that statement prepared under your direction?

A. It was.

Q. Will you state by whom it was prepared?

A. Mr. L. B. Woll.

MR. McALLISTER: Mr. Examiner, I now offer in evidence the statement which has just been identified by the witness, and I ask that it be received in evidence as Commission Counsel's Exhibit No. 18-A.

EXAMINER SPENCER: Is there any objection?

MR. PAXSON: No objection, subject to the right to check as to accuracy.

EXAMINER SPENCER: Let the statement be received as Commission Counsel's Exhibit 18-A.

(The document above referred to was received in evidence and marked Commission Counsel's Exhibit 18-A.)

BY MR. McALLISTER:

Q. Mr. Grimsley, with respect to Exhibit 18 this question was asked you at page 158 of the record:

"Q. Does it not mathematically appear that if Jersey Central Power and Light Company is receiving in excess of the total required from outside sources that necessarily a part of the supply moving to Jersey Central Power and Light must come from the Staten Island Edison Corporation."

Your answer to that question was:

"A. That is correct."

The record on page 155 through to 158 shows that with respect to that answer that you were referring to Exhibit No. 18. I will ask you if you would reach the same conclusion with respect to Exhibit 18-A?

A. It is the same character of data and it shows the same or substantially the same result.

Q. Mr. Grimsley, Mr. Bass, when he appeared as a witness in this proceeding on yesterday, supplied for the

record certain information showing the load of the General Cable Company upon Mechanic Street substation for certain hours and certain days, which information was obtained from the graphic recording demand meter maintained by the Public Service Electric and Gas Company in the plant of the General Cable Company at Perth Amboy, New Jersey. You recall that, do you not, Mr. Grimsley?

A. I do.

Q. Do you have before you Exhibit No. 13?

A. Yes, sir; I have.

Q. In what column on Exhibit No. 13 is the information as to the load of the General Cable Company shown in amperes recorded?

A. Omitting the date and time columns, it is shown in the third column to the right.

Q. The third column reading from left to right?

A. That is correct.

Q. The information supplied by Mr. Bass was stated in kilowatts, was it not, instead of amperes?

A. That is correct.

Q. Now, Mr. Grimsley, substituting for the load of the General Cable Company as shown on Exhibit No. 13 the kilowatt demand and flow of energy to General Cable Company, have you recomputed the information showing on Exhibit No. 13 to indicate the change which would be necessary on Exhibit No. 16 to carry into effect the information supplied by Mr. Bass?

A. I have had such a table prepared under my direction. Now, I want to find Exhibit No. 16.

Q. In your own language, Mr. Grimsley, will you please explain just what changes have been made in Exhibit No. 16, and the reason therefor, and the obtain retain through the use of the figures submitted by Mr. Bass?

A. By substituting the kilowatt records taken from the demand meters on the General Cable line in lieu of the—

Q. In lieu of ammeter readings?

A. In lieu of ammeter readings used on these lines, as shown on Exhibit No. 16, it affects the total load on the Mechanic Street substation, including Staten Island Edison Corporation. Likewise, it affects the figures shown in the column under "Remainder."

Then, in this new exhibit—

Q. Which you are now explaining?

A. Yes. In this new exhibit the same calculations were carried across, and instead of showing the flow over three transmission lines designated as A-183, N-196 and B-184, it was broken down to show the energy movements over the three lines as such.

It will be noted that the principal or the major effect by reason of using the kilowatt records taken from the demand meter is that during five time periods designated by an asterisk there is a flow of energy from Metuchen substation into Mechanic Street substation.

Then, in order to make this table comparable with the other one, it was necessary to extend it to include a division or a showing of energy expressed in percentage from two different sources.

In Exhibit No. 16 it is obvious that the supply to Mechanic Street from Jersey Central Power and Light Company was 100 per cent. Now, in these five cases that percentage of energy has been reduced from 100 per cent in the first case, December 15, 1937, 8:00 p. m. to 93.37 per cent. That expresses the amount of the energy requirements of the Mechanic Street substation which was supplied by the Jersey Central Power and Light Company.

Likewise, on the same line, 6.63 per cent of the energy requirements of the Mechanic Street substation were supplied by Metuchen.

The remaining four cases are expressed likewise, and I think it is unnecessary to read all of those percentages.

Q. The percentage which is shown in column 12, Mr. Grimsley, actually represents, does it not, the percentage of the total supply to Mechanic Street which originated on the lines of the Jersey Central Power and Light Company?

A. One or the other source.

Q. Now, Mr. Grimsley, will you please look at column 12? Take the example to which you referred a little while ago, December 15, 1937, 8:30 p. m. At that time the energy flowing from Jersey Central Power and Light Company to Mechanic Street substation was 10,000 kilowatts, wasn't it?

A. That is correct.

Q. The exhibit to which your are referring shows in column 8 that the quantity of energy coming from Metuchen was 710 kilowatts?

A. That is correct.

Q. The percentage which you show in column 12, 93.37, is the per cent which 10,000 bears to 10,710? Is that correct?

A. That is correct.

Q. It is a lot easier when you relate the figures than to ask a general question, of course. The others shown in percentage there in column 13 less than 100 were derived in the same manner?

A. That is correct. In explanation of this, Mr. McAllister, it is clearly recorded here, but I think I should state it. There was added to these General Cable demands five per cent, a liberal allowance for losses between Mechanic Street substation and the General Cable plant.

Q. In other words, on your prior Exhibit No. 16 the readings were taken at Mechanic Street?

A. That is correct.

Q. In this instance the readings were taken at the plant of the General Cable Company; so if there were line losses you have made what you state is a liberal allowance for that possibility of line losses in that transaction?

A. That is correct.

Q. I believe it was stated, Mr. Grimsley, with respect to the readings of the ammeters from which you derived the load of the General Cable Company that there was a possibility that those readings were not as accurate as they might be. Isn't that true? I mean that statement was made by a witness for the Respondent.

A. That is correct.

Q. As I understand it, you have substituted for those ammeter readings a graphic reading which records the integrated demands of the General Cable Company over fifteen minute periods? Is that correct?

A. That is correct. It removes it from the realm of doubt. There can be no question about these results.

Q. In substituting those readings which you say are unquestionably accurate for those which were questioned, Mr. Grimsley, have you preserved the same method of determination in this exhibit which was followed in Exhibit No. 16?

A. That is correct.

Q. By making some alteration by adding the additional column which you have here under the numeral column 12?

A. I would not call it an alteration. I think it was just necessary to set up those two percentage columns in order to carry the study through to completion.

Q. When I used the term "alteration" I meant the headings of columns rather than any change in any manner or method employed in the determination which you made?

A. I think that is correct.

Q Isn't it your conclusion from this statement, as you stated with respect to Exhibit No. 16, Mr. Grimsley, that whenever in column 12 it is shown that 100 per cent supply of energy came from the Jersey Central Power and Light Company that all of the energy flowing from

the Public Service Electric and Gas Company to the Staten Island Edison Corporation must have originated on the lines of the Jersey Central Power and Light Company?

A. Will you repeat the question, please?

EXAMINER SPENCER: Will the Reporter read the question, please?

(The question was then read by the Reporter.)

THE WITNESS: Yes; that is my conclusion.

BY MR. McALLISTER:

Q. And when they show a percentage which is less than 100 per cent, as you have in five cases, the energy moving from the Mechanic Street substation of the Public Service Electric and Gas Company to the Staten Island Edison Corporation would contain a mixture of energy made up of energy coming from the Jersey Central Power and Light Company and Metuchen, the percentage coming from the Jersey Central Power and Light Company being expressed in column 12 and that coming from Metuchen being expressed in column 13? Isn't that true?

A. I would not say that this indicates clearly that the movement of energy to Staten Island in these five cases is a mixture. It may be or it may not be.

Q. What is your opinion? That they would divide in about the proportions you state here?

A. I think that would be a logical deduction that one might make.

MR. McALLISTER: You may cross-examine, Mr. Paxson.

EXAMINER SPENCER: I think we will recess at this time until 1:30.

MR. McALLISTER: Before recessing, Mr. Examiner, may we introduce the exhibit which has been

identified by the witness? I ask that it be received in evidence as Commission Counsel's Exhibit 16-A.

EXAMINER SPENCER: Have you any objection?

MR. PAXSON: I have no objection to the offer of this as an exhibit insofar as transactions appear to be prior to March 14, 1938, subject, of course, to the right to check the accuracy thereof. Insofar as this exhibit purports to show any transactions or give any data for periods subsequent to March 14, 1938, I object thereto upon the ground that such data is incompetent, irrelevant and immaterial, having no bearing on the issue in this case, which is the acquisition of certain stock of March 14, 1938.

EXAMINER SPENCER: Let the objection of counsel for the Respondent and Intervener be noted. The objection is overruled.

This statement will be received in evidence as Commission Counsel's Exhibit 16-A.

(The document above referred to was received in evidence and marked Commission Counsel's Exhibit 16-A).

EXAMINER SPENCER: At this time, gentlemen, we will recess until 1:30.

(Thereupon, at 12:35 o'clock p. m., a recess was taken until 1:30 o'clock p. m.)

AFTER RECESS.

(The hearing was resumed at 1:30 o'clock p. m., pursuant to recess.)

EXAMINER SPENCER: The hearing will be resumed.

Whereupon

A. H. GRIMSLEY,

the witness on the stand at the time of recess, resumed the stand and testified further as follows:

EXAMINER SPENCER: Mr. Paxson, are you ready to proceed with the cross-examination?

MR. PAXSON: I have no questions.

EXAMINER SPENCER: No questions?

MR. PAXSON: No, sir.

EXAMINER SPENCER: All right, do you have any more witnesses?

MR. McALLISTER: Yes, I have, Mr. Examiner.

EXAMINER SPENCER: Do you say you do have some more witnesses?

MR. McALLISTER: Yes, I do have. I am just assembling my material.

EXAMINER SPENCER: In the meantime will you let me have that application that was filed with the Securities and Exchange Commission?

MR. McALLISTER: Yes, sir. I will call Mr. Bennett, please.

(Witness excused.)

Whereupon

CLAUDIUS E. BENNETT,

a witness produced by and on behalf of the Federal Power Commission, having been first duly sworn by the Examiner, was examined and testified as follows:

Direct Examination

BY MR. McALLISTER:

Q. Mr. Bennett, will you state your full name and address for the record, please?

A. Claudius E. Bennett, Washington address 2007 Klingle Road, Northwest.

Q. Mr. Bennett, I believe you are an electrical engineer, is that true?

A. That is true.

Q. Will you state what your education and experience has been, not in too great detail?

A. I graduated from the University of Nebraska with a Degree of Bachelor of Science in Electrical Engineering, and I took a post-graduate course and received Master of Science Electrical Engineering Degree from the University of Illinois and some years later presented theses and received the professional Degree of Electrical Engineer.

Q. What has been the nature of your work, Mr. Bennett, in the electrical engineering field, beginning with the time you left college until the present time?

A. After I left college I went with the Westinghouse Company.

Q. Will you give the years, please, so we can kind of follow along?

A. Shall I back up to the Degrees?

Q. You might state those briefly.

A. The original Bachelor of Science Degree from Nebraska was in 1909. The Master Degree in 1912, and the Professional Degree of Electrical Engineer in 1928.

I went with the Westinghouse Company as student engineer or graduate student in 1912, left them, and while there was employed in the usual type of test work, and at one time during the period was loaned to Ford, Bacon and Davis in connection with some consulting engineering work which they were doing in Pittsburgh.

I went with the Electric Bond and Share Company on Utah, Idaho properties, in 1913, remaining with them until 1918. During that time I was employed in various capacities of inspector, maintenance man, load dispatcher, plant superintendent, and construction work. I left the Utah Power and Light Company to go with Canadian General

Finance Company on Spanish properties in 1918, remaining there until 1926.

Q. Where was that, Mr. Bennett?

A. That was in northeastern Spain with headquarters in Barcelona and with properties occupying roughly the territory from the Ebro River north to the Spanish Frontier, west to the territory roughly fixed more or less on a line with Lerida, and south some distance beyond the Ebro River.

Q. What was the nature of your employment and of the work you were engaged in while you were on this job in Spain, Mr. Bennett?

A. I went there as assistant to the chief electrical engineer. I occupied various positions through the property. Was made chief electrical engineer of the property and acted at various times as acting chief engineer, once for a period of about a year, and at various other times for short periods. As chief electrical engineer I had charge of design and minor construction, by minor construction I mean the construction of substations, transmission lines and things of that sort, excluding the main hydraulic plant, which we constructed, on which I only had the electrical design, but not of the actual construction.

And, I was also in charge of the operating and maintenance of the production, transmission and distribution systems of the company. This was a company operating low voltage lines, that is to say 6,600, 11,000, 13,000, 22,000, 25,000, 88,000 and 110,000 volt lines, and that is all.

Q. Those lines, 110,000 volts are not low voltage lines you referred to in the beginning?

A. No, I offered that as a suggestion. It was all lines from low voltage up to and including the higher voltage lines the company operated.

Q. I think you said you remained with that property until 1928?

A. 1926.

Q. 1926?

A. And in 1926 I was transferred to the Mexican properties, remaining there until 1927.

Q. These Mexican properties are controlled by whom?

A. Controlled by the Canadian General Finance Company.

Q. The same company by whom you were employed while in Spain?

A. That is correct. On the Mexican property the duties were very similar, the property was very similar and the duties much of the same capacity that I was in, although I was not in charge of electrical design on Mexican properties. The company set-up was somewhat different.

Q. Where are the properties in Mexico located?

A. These properties are located, the principal city is Mexico City and the surrounding country and hydro-electric properties in adjacent provinces.

Q. Can you give us the name of the company in Mexico?

A. The translation of it is Mexican Light and Power Company. I take it you don't want the actual official Spanish name of it.

Q. No, I think the other is more significant in this record, Mr. Bennett.

A. Yes, sir.

Q. What was the name of the property which you were directly associated with in Spain, giving us the English equivalent for the Spanish name?

A. The property with which I was originally employed was the Ebro Irrigation and Power Company, that is the English translation, and a subsidiary called, with my freely translated Spanish, Barcelona Light Company, and at that time we were interconnected with the French property, translated freely again, Electrical Energy of Catalonia Company, and with a Spanish, another property called Catalonia Gas and Electric Company.

Q. You were also interconnected with the latter named company?

A. We were interconnected with the companies. We later absorbed the company referred to and I would be afraid I was crossing the record up, and may I refer to this as the Energia Electrica. We later absorbed that company and put it completely within our own unified operation, if you will.

Q. Now, Mr. Bennett, subsequent to your employment on the properties in Mexico, will you continue with a description of your experience?

A. I returned to the United States at that time and went to Florida. Then, in 1928, I became instructor in electrical engineering at the University of Florida and in the following year I became assistant professor and electrical engineer for the state-owned radio station WRUF. This was a 5 kilowatt radio broadcast station. In 1930 I became city manager of the City of Fort Pierce, Florida, and as such was also superintendent of utilities.

Q. Did that involve any electrical property?

A. That involved various types of property operated by the city, water and electricity included in that, and the management of various other properties, a port district, a golf club, a hospital, and a few other things in addition to the usual city functions.

Then in 1932 I went to the University of North Carolina as Associate Professor of Electrical Engineering and as such conducted classes and laboratory courses in the usual range of electrical engineering subjects, including a course in advanced transmission theory and a graduate course. This position was in the nature of a temporary work, filling in between the resignation of the department head and the time when the new department head was able to take over his duties.

Toward the end of 1933 I was employed by the Federal Power Commission as engineer and have been with the

Commission ever since with my major duties in this time problems in connection with transmission and distribution, problems and investigations, I should say.

Q. Mr. Bennett, I believe you were in attendance at this hearing throughout the time when we had under consideration the lines which connected generating plants of Jersey Central Power & Light Company with the Mechanic Street Substation of Public Service Electric and Gas Company, which were discussed and described as consisting of a subterranean conduit cable to the north bank of the Raritan River, a submarine cable crossing the Raritan River, and a tranmission line on poles extending from the south bank of the Raritan River to the plant of the Jersey Central Power & Light Company at South Amboy, New Jersey.

It was also stated on the record that there were no customers served by that line at any point between the Mechanic Street substation in Perth Amboy and the power plant of the Jersey Central Power & Light Company in South Amboy.

Likewise, it was noted on the record that the circuit from Mechanic Street Substation to Atlantic Substation of the Staten Island Edison Corporation consisted of a subterranean cable to the Kill Van Kull, a body of water separating the state of New York and the State of New Jersey, at that location that the line continued through a submarine cable across that body of water and that cable continued from the east bank of that body of water to the plant of the Staten Island Edison Corporation by means of a subterranean cable.

With respect to that particular line it was also testified that there was no service to any customers between Mechanic Street Substation and Atlantic Substation of Staten Island Edison Corporation.

Now I ask you, Mr. Bennett, as an engineer whether

you would classify such lines as transmission lines or otherwise?

MR. PAXSON: Just a moment. Did Mr. Bennett ever see those lines to know anything about them, or is he giving his opinion because he has listened to some testimony?

THE WITNESS: Shall I answer the question?

MR. McALLISTER: The question, Mr. Examiner, is based entirely upon information that was given in the record by the various witnesses that appeared here who had examined the cables and connections and who testified what they consisted of.

EXAMINER SPENCER: Mr. Bennett, do you recall the testimony that was given?

THE WITNESS: Yes.

EXAMINER SPENCER: And your question is based upon that testimony?

MR. McALLISTER: That is correct.

EXAMINER SPENCER: In his opinion would such lines be transmission lines?

MR. McALLISTER: That is true.

EXAMINER SPENCER: Proceed, Mr. Bennett.

THE WITNESS: On the basis of the testimony which I have heard in this case these lines are what engineers in ordinary practice refer to as transmission lines and function as such.

MR. PAXSON: What was that last?

THE WITNESS: And function as such.

BY MR. McALLISTER:

Q. In connection with that last question I believe

the record further shows, Mr. Bennett, that these particular lines which I described are 26.4 KV lines, isn't that true?

A. I believe they have been so testified to. I have no direct knowledge.

Q. And if the record does show that they were 26.4 KV lines, would that fact in any way alter your answer?

A. No, it would not because the ordinary engineering concept of a transmission line is based upon its functions and not its voltage.

Q. Mr. Sibley testified that in determining the manner in which a load on Mechanic Street coming from Staten Island Edison Corporation would divide between South Amboy plant and Jersey Central Power & Light Company and other generating plants on the Public Service Electric and Gas Company, would not be determined or increased by the impedance in the lines between Mechanic Street Substation and the plants of the Jersey Central Power & Light Company at South Amboy, New Jersey, and the impedance in the line of the Public Service Electric and Gas Company between Mechanic Street Substation and other generating plants on the property of the Public Service Electric and Gas Company, which might be in operation at the time the particular load from Staten Island Edison Corporation attached itself to the Mechanic Street Substation.

Do you recall that statement by Mr. Sibley?

A. I recall some such statement, but I do not remember the exact way in which the statement was made.

Q. I call your attention to page 858 of the record, the transcript, Mr. Bennett, and ask you if the statement made by the witness Sibley is recorded on that page or any other page, and if that is the testimony of the witness which you said you recollected?

MR. PAXSON: How much of it, now? Let us know.

MR. McALLISTER: Well, we will let him testify that.

MR. PAXSON: Of course you are asking the question.

MR. McALLISTER: I am asking the question, but it is apparently proper to limit what he is referring to by presenting him with the transcript.

THE WITNESS: Did you refer to the question at the bottom of the page without regard to the quantity of energy that would be picked up and so forth?

BY MR. McALLISTER:

Q. I have reference to that question, Mr. Bennett, but in relating the events, I had reference to the prior question which I had directed to Mr. Sibley on cross-examination, beginning with my question regarding Exhibit 8 and leading up to that point on page 858 where the question to which you refer is to be found.

The general matters, as I recall them from the record, are those which I stated in my question, and it is this particular question to which I had direct reference in putting the question as I did to you, the question being:

"Without regard to the quantity of energy that would be picked up by these various generators that are on the line, would the impedance in the lines between Mechanic Street Substation and the generating plants have anything to do with the quantity that would be picked up?"

And the answer was no, sir.

"Q. Nothing whatever?"

And the answer to that was no.

Now, do you want that question read in the light—

A. (Interposing) Do you wish me to state whether or not I agree with that?

Q. Yes.

A. That statement is not correct.

Q. The statement made by the witness Sibley is not correct?

A. As I understand his answer.

Q. Will you explain in the record why you say it is not correct?

A. This was, as I recall, the testimony in connection with the application of a sudden load at the substation on the Public Service System and if we are dealing with a plant near at hand and various other plants, dealing as it was in this case with a plant near at hand and from many other plants farther away, the impedance of the lines would affect very greatly the amount of energy that is instantly picked up when a sudden demand comes on the line.

Q. I believe in that assumption the testimony as given by the witness Sibley, it was stated that that sudden load on the line of the Public Service Electric and Gas Company at Mechanic Street Substation originated through the interconnection with Staten Island Edison Corporation, isn't that true?

A. I think so.

Q. Is that shown by Exhibit 8 as introduced by the respondent?

A. I believe so.

Q. You refer to the load on the line. You were referring to the load on the bus at Mechanic Street Substation.

A. Yes, I was referring to the load which was suddenly applied to the Mechanic Street Substation and in so doing to the lines supplying the Mechanic Street Substation. That was my thought in using the word line; I probably should have used the word substation or substation bus bar. That would have been more nearly correct.

Q. How is that sudden load shown on the chart which is Respondent's Exhibit No. 8?

A. That sudden load is indicated on the upper chart

in the part reading from Public Service Electric and Gas Company to Staten Island Edison Corporation.

Q. Isn't it the other way? I think you are reading the wrong designation.

A. Public Service Electric and Gas Company to Staten Island Edison Corporation. I think that was the part I read.

Q. I believe that is right. I am the one that is mistaken.

A. And is shown as a sudden rise in load taken by the Staten Island Company at approximately 2:24, I would say from the record, and amounting to an abrupt load of slightly more than 10,000 kilowatts.

Q. Now is it your testimony, Mr. Bennett, that that sudden load on Mechanic Street Substation coming from Staten Island Edison Corporation would have some effect upon the generating plant of the turbo generators in the South Amboy plant of Jersey Central Power & Light Company?

A. Yes, sir.

Q. Does the chart show that?

A. It does.

Q. How is it indicated on the chart?

A. Directly at the corresponding time on the lower chart, which indicates power from Jersey Central Power & Light Company to Public Service Electric and Gas Company, there is a sudden rise of load at the same time amounting as I read the chart, to perhaps 2,500 kilowatts.

Q. The abrupt increase in the flow of energy from Jersey Central Power & Light Company to Mechanic Street Substation amounted to 2,500 kilowatts, is that true, Mr. Bennett?

A. Will you read the question, please?

(Whereupon the reporter read the pending question as recorded.)

THE WITNESS: This is an abrupt increase in power from Jersey Central Power & Light Company to the Public Service Electric and Gas Company, amounting to approximately 2,500 kilowatts at the same time that this sudden Staten Island demand came on on Mechanic Street Substation, and it is my judgment that it was produced by this sudden load from Staten Island Edison Corporation.

BY MR. McALLISTER:

Q. You mean then this sudden increase in flow of electric power from Jersey Central Power & Light Company went to Mechanic Street Substation at that time when the sudden load from Staten Island Edison Corporation came on to the bus at Mechanic Street Substation, is that true?

A. I mean that the increasing demand for power from the bus bars of Mechanic Street Substation causing this station to draw power from available sources of power to the substation, and that the abrupt rise shown in the supply from Jersey Central Power & Light Company substation to that substation from Jersey Central Power & Light Company to that substation, is the amount which was contributed by the South Amboy plant as a result of the sudden load.

Q. Do the impedances over the line have anything to do with the distribution of that type of load coming onto a bus in the substation, Mr. Bennett?

A. Yes, the impedances very largely determine the instantaneous flow of energy from different sources to the bus bar on which there is a sudden demand for increase in energy. By impedance I mean the impedance of the source of supply and of the connecting circuits and equipment.

Q. If the distance from Mechanic Street Substation to the plant of Jersey Central Power & Light Company at South Amboy was approximately 2.13 miles and the dis-

tance to the next more distant plant from which available electric power might be obtained to furnish the energy to meet the sudden demand was 12 to 14 miles distant, would you conclude as an engineer, Mr. Bennett, that the South Amboy plant would be called upon to pick up a part of the sudden load to Mechanic Street Substation?

A. The testimony has shown that the lines between the South Amboy Station and the Mechanic Street Substation between the various other generating stations and Mechanic Street Substation are lines of considerable capacity and therefore the power which flows instantaneously on the occurrence of a sudden demand will be drawn from the various available sources, including South Amboy.

Q. And with respect to South Amboy what would be your judgment as to the division of power because of the closeness of that station to Mechanic Street Substation as compared with the fact that the other generating plants are more distant, and as was stated on the record by various witnesses, from 12 to 14 miles from Mechanic Street Substation.

MR. PAXSON: Objected to unless this witness shows he is familiar with the South Amboy Station and other generating plants of Public Service Electric and Gas Company, which he says are connected some distance away. He doesn't show this witness knows anything about the capacity of the plant, the size of the lines or any of the matters which might be necessary in such a question.

EXAMINER SPENCER: Read that, Mr. Reporter.

(The reporter thereupon read the pending question as recorded.)

MR. PAXSON: He is putting it on one basis, distance, without any other characteristics.

EXAMINER SPENCER: If the witness has knowledge sufficient to base his answer on, he may answer.

MR. PAXSON: He hasn't shown it thus far, if the Commission please. He purports to testify from having listened to some testimony.

EXAMINER SPENCER: I don't think the question includes that supposition. The only thing stated in the question was as to the distances that witnesses had testified to. Do you want to hear the question read again?

MR. PAXSON: Yes.

EXAMINER SPENCER: Read it, Mr. Reporter. (The reporter thereupon read the pending question as recorded.)

MR. PAXSON: He hasn't shown this witness even knows what the plants are that are more distant, how many there are, what their capacity is, doesn't know anything about the distance, hasn't laid any proper basis for judgment, hasn't shown this man ever saw any of the plants, and there is the question of efficiency and how well they are maintained.

EXAMINER SPENCER: All right, he may answer.

MR. PAXSON: I take an exception.

EXAMINER SPENCER: Objection overruled and exception noted.

THE WITNESS: In calculating, if I were called upon to calculate the division of load in a case of this sort, or to exercise judgment, as I understand the question to be on the amount of power that would be contributed by the South Amboy Station, one must

take into consideration not only the distance of the lines, but their characteristics, other characteristics of lines and generators. I know from reports that have been submitted—

MR. PAXSON: (interposing) Pardon me.

THE WITNESS: I know from reports that have been submitted, the power reports which are submitted to this Commission, that the plant at South Amboy is of, as I recall it, about 50,000 kilowatts capacity. It was testified that the capacity of these other plants at the time was perhaps 250,000 kilowatts. Taking into mind all of these factors, the distance, the capacity, the characteristics of the line, that have been testified to, it is my judgment that the amount of load apparently as shown by the record is what one would expect.

MR. PAXSON: Is what, I can't hear very well?

THE WITNESS: That the amount of load as shown by this sudden pick-up on the curve of power from Jersey Central Power & Light Company to Public Service Electric and Gas Company at the Mechanic Street Substation is the amount that in my judgment is reasonable.

BY MR. McALLISTER:

Q. In other words, the amounts which South Amboy plant contributes to the load on the bus at Mechanic Street Substation.

A. I know that South Amboy Station must contribute a considerable quantity of energy with operating conditions as they have been testified to at the time, and I said that the amount which is indicated on the graph is a reasonable amount for it to contribute and is probably the amount it actually did contribute.

Q. By that you are referring to the sudden increase of 2,500 kilowatts shown to have been the increase in the quantity of electrical power flowing from Jersey Central Power & Light Company to Mechanic Street Substation at about, what time was that?

A. 2:24.

Q. 2:24, was it shown on there, you testified to?

A. About 2:24 was about the time I stated.

Q. 2:24, and which sudden increase was coincidental with the sudden demand on Mechanic Street from Staten Island Edison Corporation as shown by the red line extending down to something more than 10,000 kilowatts sudden demand at that same time.

A. That is correct.

Q. Now, Mr. Bennett, will a generator—

EXAMINER SPENCER: (interposing) Mr. McAllister, let me interrupt you a moment please. I want to ask the witness a question.

MR. McALLISTER: All right, Mr. Examiner.

BY EXAMINER SPENCER:

Q. Mr. Bennett, suppose there are two plants of the same capacity, one two miles away, and one ten miles away, what effect would a sudden demand have on the pick-up with respect to each?

A. Plants of the same capacity and I assume with the same generating characteristics, same general characteristics of the generators?

Q. Yes.

A. In that case, the difference in the amount of power instantly picked up would be fixed by the impedance characteristics of the connecting lines and generators. Therefore, the plant that was nearest to the load, if the transmission lines were also of similar characteristics, would be greater than the amount picked up by the plants more distant.

The exact division of the load can only be determined by computation, taking into account the transient characteristics of generators, the inertia characteristics, and all of the other characteristics of the equipment. All one can say offhand is that the nearest plant would instantaneously pick up a greater portion of the load than the plants more distant.

EXAMINER SPENCER: Thank you, sir, you may proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. Although a plant instantaneously picks up that major part of the load, may the operator by manual control within a reasonably short time thereafter bring the load on that plant down to what it was before the sudden demand, or make it even lower if he so elects?

A. The operator by manual operation can adjust the steady flow of energy he desires according to the amount of steam he admits to the turbines by his manipulations.

Q. Now, Mr. Sibley, on page 862 in answer to this question—I think I will have to read it. A series of questions on page 862. On that page I put this question to Mr. Sibley:

"Q. Well, what load would be required before there would be any change in the operation of the plant at South Amboy?" Referring to the sudden load thrown onto Mechanic Street about the time you have testified to, Mr. Bennett. The questions and answers I refer to are as follows:

"Q. Well, what load would be required before there would be any change in the operation of the plant at South Amboy?

"A. I don't know, but it would be in considerable excess of these cable tie lines.

"Q. The generator at South Amboy at no time

would be affected by a change in load of 10,000 kilowatts?

"A. On Public Service Electric and Gas Company?

"Q. On Public Service Electric and Gas Company, no matter where it came on.

"A. I don't think it would. We are dealing with large quantities here.

"Q. Would 25,000 affect it? 25,000 kilowatts as a sudden load on Public Service Electric and Gas Company, would that affect the speed of the generators?

"A. I don't think so.

"Q. You don't think so?

"A. No."

Now with respect to that line of questioning, Mr. Bennett, I will ask you whether or not a certain load of 25,000 kilowatts suddenly imposed on the bus at Mechanic Street Substation would influence in any way the turbo generators in the plant of Jersey Central Power & Light Company at South Amboy, if such a load would affect those turbo generators, will you kindly explain in what manner they would react to that load?

MR. PAXSON: Objected to on the ground that this witness is not qualified, not having shown that he knows anything about the characteristics, efficiency or condition or the maintenance of the turbo generators connected with the South Amboy Station.

EXAMINER SPENCER: I will permit the witness to answer the question.

THE WITNESS: Will the reporter read the last portion of the question?

MR. PAXSON: Exception.

(The reporter thereupon read the portion of the question as requested.)

THE WITNESS: A load of that magnitude applied at the Mechanic Street Substation would most certainly affect the generators at the South Amboy Station. The instantaneous effect of this, of the sudden application of this load would be to slow down these machines, making them, for a brief interval of time, tend to lag behind the remaining generators on the System. This instantaneous slowing down of the generators in South Amboy would, therefore, cause the governors to operate regardless of the number of plants that there might be on the System at points more remote from Mechanic Street Substation. The operation of the governors would then cause more steam to be admitted to the turbines and would again bring the machines up to a speed corresponding to the remainder of the System, and cause the machines to carry more load than they were carrying at the time that this sudden load was imposed on the System.

BY MR. McALLISTER:

Q. Would a change in load amounting to 2.8 per cent on any turbine operate in such fashion as to cause that turbo generator to—put it this way, cause the governor on that turbo generator to react so that that machine would pick up an additional load?

MR. PAXSON: I have the same objection as I had before. I don't want to interrupt unduly.

EXAMINER SPENCER: That is all right, let the objection be shown and exception noted.

A. As I understand your question it is whether or not a change of load of 2.8 per cent presumably of the rating of the machine would cause any governor to operate.

If that is the question I can state that in general that it would. Governors differ somewhat in sensitivity. The best governors have a sensitivity around 1 per cent. Older and poorer types of governors, not being so good, but in general a 2.8 per cent increase of load would cause the governor to operate.

BY MR. McALLISTER:

Q. Do you know when the plant at South Amboy belonging to the Jersey Central Power & Light Company was constructed?

A. As I recall—

MR. PAXSON: (interposing) Let me hear that question before you answer that.

MR. McALLISTER: When was the plant at South Amboy constructed?

MR. PAXSON: I object. This man doesn't know anything about it.

EXAMINER SPENCER: Do you know when it was constructed?

THE WITNESS: I have seen the report submitted by the company when it was constructed and it was stated in that report, 1930. I assume that report is correct.

MR. McALLISTER: Furthermore the record in this case shows from the testimony of the witness Crumley that it was constructed in 1930 and placed in operation the latter part of 1930.

MR. PAXSON: That statement is correct.

MR. McALLISTER: So there is no question about the time.

EXAMINER SPENCER: You have got your witness corroborating the witness for the respondent.

MR. McALLISTER: And admission of counsel.

EXAMINER SPENCER: Both counsel agree to it, so proceed.

BY MR. McALLISTER:

Q. Now, Mr. Bennett, are you familiar with the type of generator that would be installed in a plant as late as 1930 and the characteristics of a governor that would be in use on the turbo generators in a modern plant of as recent construction as 1930?

A. Yes.

Q. What would you say as to the sensitivity of a governor upon any of the turbo generators in Jersey Central Power & Light Company at South Amboy?

MR. PAXSON: Objected to unless the witness knows something about those generators other than what he has heard that they were built in 1930. He isn't qualified.

EXAMINER SPENCER: What was the question?

MR. PAXSON: He hasn't even shown he was a mechanical engineer.

MR. McALLISTER: You will have an opportunity to go into that on cross examination.

MR. PAXSON: I have got to get my objection in.

EXAMINER SPENCER: What was the question?

MR. PAXSON: I object on the ground this witness has not qualified as a mechanical engineer.

EXAMINER SPENCER: I will sustain the objection, but not on that ground. The witness can testify as to what—

Read the question.

(Whereupon the reporter read the pending question as recorded.)

EXAMINER SPENCER: The witness can testify what in his opinion would be the sensitivity of a governor of a certain type and such as is at that plant, if he knows the type.

THE WITNESS: Shall I answer?

EXAMINER SPENCER: Yes.

BY MR. McALLISTER:

Q. Can you answer the question, Mr. Bennett?

A. Governors on turbo generator sets of design as late as this would certainly have a sensitivity as good as 2 per cent and probably as good as 1 per cent of full load.

MR. PAXSON: I move the answer be stricken. He hasn't yet shown he knew anything about the turbo generator in this plant. He hasn't yet shown he did.

THE WITNESS: Mr. Examiner, may I state the basis for that answer?

EXAMINER SPENCER: Yes, you may explain your answer.

THE WITNESS: In the operation of electrical systems, one buys turbo generators and other equipment for certain performance. The man who buys equipment for guaranteed performance is not interested at all in the design of equipment or how the manufacturer attains that performance, but he does know what requirements his governor must have and his generators and other parts of the equipment in order to operate in parallel with other machines on the system, and it is on the basis of modern interconnected system performance this answer is based.

EXAMINER SPENCER: Let the objection of counsel for the respondent be noted and the objection overruled and exception granted.

BY MR. McALLISTER:

Q. In other words, Mr. Bennett, your answer is based on statements which evidently appear on this record to the effect that Jersey Central Power & Light Company is interconnected with Public Service Electric and Gas Company, and through that company to Philadelphia Electric Company, Pennsylvania Power and Light Company, and a great many other companies which operate in parallel and in synchronism each with the other?

MR. PAXSON: Now, just a moment. I object to that. He is making a general statement that it evidently appears on the record. It isn't so stated in the record at all. I don't think he can make any such general statement. It is very leading. It is a leading question and asks for yes, of course.

EXAMINER SPENCER: Confine your question,—

MR. PAXSON: (interposing) And it also involved a legal conclusion.

EXAMINER SPENCER: Confine your questions to matters within his knowledge. If he knows from the record what these generators are, why he can talk about them.

MR. McALLISTER: I will approach the matter in this way, Mr. Examiner: This question was put to Mr. Sibley—

MR. PAXSON: (interposing) Where?

MR. McALLISTER: On page 862.

BY MR. McALLISTER:

Q. This question was put to Mr. Sibley on page 862:

"Q. Would 25,000 affect it? 25,000 kilowatts as a sudden load on Public Service Electric and Gas Company, would that affect the speed of the generators?"

He said he didn't think so, and the next question was "You don't think so," and he said no.

Would you accept that as a proper and correct answer to the question put to the witness?

MR. PAXSON: I object to that as to whether that is a proper answer to the question put to the witness. That is not expert testimony.

EXAMINER SPENCER: I sustain that objection. You can ask him if in his opinion it is true.

BY MR. McALLISTER:

Q. Mr. Bennett, as an electrical engineer, would you say that a load of 25,000 kilowatts imposed on the generators of Public Service Electric and Gas Company would affect the speed of those generators?

MR. PAXSON: I object to it unless he knows of his own knowledge something about the generators of Public Service Electric and Gas Company. He is speaking about specific generators now. That is not a hypothetical question.

BY EXAMINER SPENCER:

Q. Do you know about these generators, Mr. Bennett?

A. I know the reported capacity. I have seen the reported capacities of them and I have heard the testimony as to the capacity of the machines.

MR. PAXSON: I still object. All he knows is hearsay as to capacity and other characteristics, as he has stated.

EXAMINER SPENCER: You may answer the question upon your knowledge of the generators from official reports in this Commission. The objection to that extent is overruled.

MR. PAXSON: Exception.

THE WITNESS: If a 25,000 kilowatt load is suddenly imposed upon the system of Public Service Electric and Gas Company at the Mechanic Street Substation it will affect the generators of Public Service Electric and Gas Company.

BY MR. McALLISTER:

Q. Regardless of the capacity of those generators?

A. Regardless of the capacity of those generators.

MR. PAXSON: What was that?

THE WITNESS: Regardless of the capacity of those generators, yes.

BY MR. McALLISTER:

Q. If that is not true, Mr. Bennett, then is it not a fact that a load of 25,000 kilowatts could be imposed upon the System of Public Service Electric and Gas Company without any additional increase in the cost of generation on the system of Public Service Electric and Gas Company?

MR. PAXSON: Same objection.

EXAMINER SPENCER: Overruled and exception noted. Proceed.

A. The testimony that was given in connection with this was to the effect that a 25,000 kilowatt load suddenly imposed upon the Public Service Electric and Gas Company would be so minute that it would not affect the speed of the System sufficiently to cause any governor to operate. If so, if no governor operated, then no more steam would

be admitted to the generators anywhere on the System, therefore no more coal would be burned and the System would be able to pick up this load of the Staten Island Edison Company, which was testified to as being about 19,000 kilowatts, without any additional cost whatever. Such a conclusion is of course ridiculous and it is very evident, therefore, that the governors must operate to pick up this additional load, that quite regardless of any theoretical considerations which I outlined in answer to the previous question.

BY MR. McALLISTER:

Q. Mr. Sibley testified in explaining chart No. 8 that emergency energy required by Staten Island Edison Corporation resulted in increased generation on the System of Public Service Electric and Gas Company.

From a consideration of the chart, Mr. Bennett, would you say that any such conclusion can be reached?

A. I fail to find in the chart any evidence of that.

Q. Mr. Bennett, have you reconstructed a part of Exhibit No. 8 to place the two charts which are shown thereon on the same scale?

A. A draftsman reconstructed a part of this chart showing the flow of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company so that it would be represented to the same scale as the flow of energy from Public Service Electric and Gas Company to the Staten Island Edison Corporation so as to facilitate the comparison of these flows of energy.

Q. Will you please state upon what scale the flow of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company is shown in blue on that chart as introduced by the Respondent?

MR. PAXSON: Pardon me, but have you one for us to see while he is testifying?

MR. McALLISTER: I have not. This one here

was prepared under extreme difficulties, and I wanted to allow him to use it before I introduced it.

MR. PAXSON: But we cannot understand his testimony when he is doing that.

MR. McALLISTER: It will be agreeable to me for you to step up here next to the witness and watch the chart while he is testifying. All that the witness has done, as I understand it, has been to increase the length of the line.

EXAMINER SPENCER: Gentlemen, at this time, we will take a five minute recess.

(Thereupon, a short recess was taken, after which the following occurred.)

EXAMINER SPENCER: Gentlemen, the hearing will now be resumed.

BY MR. McALLISTER:

Q. Now, what is your answer?

A. Will you read the question, please.

(The question was then read by the Reporter.)

THE WITNESS: The flow of energy from the Jersey Central Power and Light Company to Public Service Electric and Gas Company as it appeared on the chart as introduced by Respondent is 30,000 kilowatts for full scale reading as contrasted with 10,000 kilowatts for full scale reading on the similar sized chart showing flow of energy from Public Service Electric and Gas Company to Staten Island Edison Corporation. The scale of the flow of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company has been changed to correspond with the chart used for Staten Island Edison Corporation by making the ordinates three times as high or three times as great.

BY MR. McALLISTER:

Q. Is that tantamount to placing the scale showing the flow of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company upon the same basic scale as that scale which records the flow of energy from Public Service Electric and Gas Company to Staten Island Edison Corporation?

MR. PAXSON: Just a minute, please. I object. An inspection of this chart shows that he has not put all of this flow from the Public Service Electric and Gas Company to Jersey Central Power and Light Company on an increased scale. He has only put a very small part of it. If this is to be offered in evidence I want it done in toto to show the general trend. That was the purpose of this chart. He has taken only a small portion of it. I do not think there should be any general testimony based upon a very limited section of this chart.

MR. McALLISTER: Mr. Examiner, if I may be permitted to question the witness I will show just what is on the chart. The question I asked was related solely to the scale.

MR. PAXSON: He said he had raised the scale, but he has not. He has only done it in part.

MR. McALLISTER: Let the record speak for itself.

EXAMINER SPENCER: What answer did you make to the question as to whether or not you had raised the scale?

THE WITNESS: In the initial statement I specified a portion of the chart. In answering the last question I responded only in general with regard to the scales, but in the original testimony it was specified that only a part had been expanded.

EXAMINER SPENCER: Does the map which you have now differ from Respondent's Exhibit No. 8 in any respect other than the scale on which the lower map is made?

THE WITNESS: It does not.

MR. McALLISTER: Mr. Examiner, if I may be permitted to have him explain this chart in an orderly manner, all of that will appear clearly before the witness expresses an opinion.

EXAMINER SPENCER: There is an objection, apparently, and I have to rule upon it before you can go on at all.

Now, Mr. Bennett, you stated that the purpose of that map was to facilitate the reading of it, did you not?

A. To facilitate the comparison of the relative magnitudes of flow so as to avoid any possible wrong impression that might be drawn between the flow of energy due to the difference in scales. It is purely to facilitate the comparison. And the only reason why only a portion of this was expanded was because the draftsman did not have time to expand the whole chart. There was no object of putting over any wrong impression by expanding only the portion under discussion of the emergency flow of energy.

MR. PAXSON: I am not saying that there was any object, but I am afraid that it will have that effect if it is not done completely. It is only a partial job.

And he has been asked and has already testified in general as to raising the entire scale. But it appears he has not done so. Of course, he did not mean that, and it is not so implied.

EXAMINER SPENCER: Your objection is with reference to the whole map at this time?

MR. PAXSON: At this time, yes. If he is going to raise the scale, let him raise it.

EXAMINER SPENCER: Mr. McAllister, confine your question to the part that he has changed.

MR. McALLISTER: I have not gone that far yet, Mr. Examiner. I am going to offer and identify what the exhibit is, if you will permit me to do so.

EXAMINER SPENCER: He has testified to what the exhibit is.

MR. McALLISTER: No, Mr. Examiner, he has not. The record does not so show.

EXAMINER SPENCER: The record shows he has increased that scale for the purpose of facilitating the comparison.

MR. McALLISTER: At any rate, I am not satisfied with the record as it stands and I would like to show on the record specifically and clearly what was done.

MR. PAXSON: I think he is entitled to do that.

EXAMINER SPENCER: You may proceed.

BY MR. McALLISTER:

Q. Mr. Bennett, did you reconstruct this entire chart to show thereon what was shown by Respondent on their exhibit No. 8?

A. No. The chart has been reconstructed to a new scale only—

Q. Mr. Bennett, I am referring—

MR. PAXSON: Can't you let him finish the answer?

MR. McALLISTER: Just a moment. I don't see any use of going into that when it does not answer my question.

BY MR. McALLISTER:

Q. What I am referring to is this, Mr Bennett. Do you have before you the exact chart which was presented in this proceeding by Respondent as Exhibit No. 8 as the base upon which you superimposed in green, as shown thereon, a certain change in scale to relate that part of the chart as showing the flow of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company upon the same scale as is shown above, without in any way attempting to change the chart as submitted by Respondent?

A. Yes, sir.

MR. PAXSON: Now, just a minute, please. That gets us involved, and so involved that I don't know what he is answering "yes" to. There are a half dozen different things in it. We have to go slowly. I am not an engineer, although I know this man is, but I know Mr. McAllister is not an engineer. That is why these questions are very involved. And I want to hear them.

EXAMINER SPENCER: Well, state what you have before you.

MR. PAXSON: But we have an answer "yes" to something without knowing what it was, before I had a chance to object or ask for an explanation.

EXAMINER SPENCER: Go ahead, Mr. Bennett, and explain.

THE WITNESS: Do you want me to explain what the chart is?

EXAMINER SPENCER: Yes.

THE WITNESS: This chart is the copy which was furnished to Commission's counsel of the exhibit designated as Exhibit No. 8 of the Respondent.

On this chart the draftsman multiplied each ordinate within the range which had been expanded by the factor three to bring it to the same scale as the upper chart. So an ordinate of a given length on this chart corresponds exactly to an ordinate of the same length on the other chart. It is simply for the purpose of facilitating the comparison.

MR. PAXSON: When you say that, that is my objection. Will you state what it is? You say "general comparison".

THE WITNESS: There is no intention to make it general.

EXAMINER SPENCER: For the record, Mr. Bennett, what part is it?

THE WITNESS: That is in the section from 2:20 a. m. on the morning of August 13, 1936 to 4:00 o'clock a. m. on the same date.

EXAMINER SPENCER: You may proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. As you have shown for that period, Mr. Bennett, would a flow of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company of 10,000 kilowatts be represented by the same length of ordinate as the flow of a like sum would be shown on the upper part of the chart indicating a flow of energy from Public Service Electric and Gas Company to Staten Island Edison Corporation?

A. That is right.

Q. If you take into consideration that part of the chart as now you have reconstructed it?

A. That is right.

Q. Whereas as it was put in originally by the Respondent the flow of 10,000 kilowatts from Jersey Central

Power and Light Company to Public Service Electric and Gas Company would be represented by an ordinate one-third the length of the ordinate showing the flow of a like quantity of energy from the Public Service Electric and Gas Company to Staten Island Edison Corporation? Is that correct?

A. That is correct.

Q. So that what you have done has been to put the lines upon the same relative basis showing the flow of energy between the points between which it is shown to be flowing by the chart as introduced by Respondent?

A. That is correct; for the portion of the chart that has been expanded.

Q. In other words, the irregular lines indicating the flow of energy from Jersey Central Power and Light Company to Public Service Electric and Gas Company on that portion which you have reconstructed became more jagged, so to speak, as they appear to the normal eye than they would be on the modified scale as introduced by the Respondent?

A. Our attempt was to present the graph of the flow of energy from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company in the same form in which it would have appeared if it had been recorded on a meter of the same type and with the same current transformers as were used on the circuit from the Public Service Electric and Gas Company to the Staten Island Edison Corporation, and the effect of it is, as you have indicated, to make the curve apparently more jagged by increasing the height of the peaks.

Q. In other words, Mr. Bennett, as you reconstruct the chart the same scale, the same measuring device would be utilized in reading the part that is reconstructed?

A. That is correct.

Q. Instead of using a three to one scale on the lower part introduced by Respondent and a one to one scale on the part showing the movement of energy or the flow of

energy from the Public Service Electric and Gas Company to the Staten Island Edison Corporation?

A. As presented by Respondent one would have to use a different scale in measuring magnitudes of power flow on one curve as compared with what would be used on the other curve.

Q. And in looking at the lower part representing the flow of energy from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company you must mathematically in your mind multiply the distance from the base line to the curve by three before you can make a comparison with the distance from the base line showing the flow of energy from the Public Service Electric and Gas Company to Staten Island Edison Corporation to the line showing the flow at a particular time? Is that true?

A. For visual comparison one must in his mind multiply the scale on the Jersey Central Power and Light Company to the Public Service Electric and Gas Company by three, or four a numerical comparison they must read the amounts off from scales of different sizes in the exhibit as originally presented.

EXAMINER SPENCER: Have you any other question, Mr. McAllister?

BY MR. McALLISTER:

Q. Mr. Bennett, Mr. Sibley said Exhibit No. 8 demonstrates the Staten Island Edison Corporation load had no effect on Jersey Central Power and Light Company's supplying Mechanic Street. Assuming that that is true, does the chart in any way show that Jersey Central Power and Light Company did not supply some of the energy transmitted to the Staten Island Edison Corporation?

MR. PAXSON: May I hear that question again?

EXAMINER SPENCER: Will the Reporter read the question, please.

(The question was then read by the Reporter.)

BY MR. McALLISTER:

Q. What is your answer?

A. The chart is simply a record of power flow over the circuits under discussion, and it does not show the source of energy flowing to the Staten Island Edison Corporation.

Q. Mr. Bennett, will you please look at Exhibit No. 8?

A. Yes; I have it before me.

Q. At 1:20 to 1:30 a. m., as shown on the chart received in evidence as Respondent's Exhibit No. 8 I believe it shows an average flow of electric energy from the Public Service Electric and Gas Company to the Jersey Central Power and Light Company of about 10,000 kilowatts, doesn't it?

A. The average flow during this period would be approximately 10,000 kilowatts.

MR. PAXSON: What time was that?

MR. McALLISTER: It was from 1:20 to 1:30 a. m.

MR. PAXSON: To 1:30 a. m.?

MR. McALLISTER: From 1:20 to 1:30 a. m.

MR. PAXSON: Thank you.

BY MR. McALLISTER:

Q. During that same time, Mr. Bennett, there is a flow of electric energy from the Public Service Electric and Gas Company to the Staten Island Edison Corporation of approximately what amount?

A. I would estimate the amount during that period as being approximately 800 kilowatts.

Q. If at that time you assume that the load on the Mechanic Street substation in addition to the load to the

Staten Island Edison Corporation was 5,000 kilowatts, including the requirements of the General Cable Company, what would happen to the balance of the energy coming from the Public Service Electric and Gas Company from the Jersey Central Power and Light Company at the Mechanic Street substation?

MR. PAXSON: That is objected to unless this witness states that he knows all of the various circuits into and out of that bus bar at Mechanic Street.

EXAMINER SPENCER: The witness may answer the question if he can.

MR. PAXSON: But he should lay a basis for asking a general question. He has not qualified this witness to show that he knows anything about that bus bar. He has given a load to the Cable Company and a local load. If that is all, one conclusion might be reached; if there is something else, another conclusion might be reached.

EXAMINER SPENCER: You may proceed, Mr. Bennett.

THE WITNESS: At the time to which the question relates the power being supplied from the Jersey Central Power and Light Company to the Mechanic Street substation as shown by the graph is approximately 10,000 kilowatts. The power being supplied at Mechanic Street station to Staten Island Edison Corporation was approximately 800 kilowatts. If we assume that 5,000 kilowatts is going out on local circuits from the Mechanic Street station the remainder of the power would have to flow to the system of the Public Electric and Gas Company since there are no additional circuits from the substation to other companies.

BY MR. McALLISTER:

Q. In other words, the difference between 5800 and 10,000 would flow out of and away from the Mechanic Street substation over other available circuits to the system of the Public Service Electric and Gas Company? Is that the force of your answer, Mr. Bennett?

A. Under the stated conditions it would flow to the system of the Public Service Electric and Gas Company.

Q. Out of and away from Mechanic Street?

A. Yes; out of and away from the Mechanic Street substation.

Q. Now, Mr. Bennett, assuming the same condition as existed during the period of time from 2:35 up to 2:55, I believe that shows that approximately 8400 kilowatts of electric energy was flowing from the Public Service Electric and Gas Company to the Staten Island Edison Corporation, and at this same time if we assume that the local load was 5,000 kilowatts, what additional amount of energy would be required from the bus of the Mechanic Street substation to supply the requirements at that point in addition to the energy coming from the Jersey Central Power and Light Company as shown on the chart?

MR. PAXSON: Just a minute, please. This is a hypothetical question. The witness is using one chart and Mr. McAllister is using another. If it is not material, I don't care, but I just wanted to bring that out. One is on one scale at the time he mentioned and one is on the other.

MR. McALLISTER: No; we are merely referring to your Exhibit No. 8, Mr. Paxson. He is using the same chart that you submitted and that I am using. You gave us two copies.

MR. PAXSON: I thought he was using the one that had the large scale when you mentioned that time.

EXAMINER SPENCER: Counsel had better give him the other one.

MR. McALLISTER: He is referring only to that part of Exhibit No. 8. I am not referring to the other.

MR. PAXSON: I do not want to be captious. If he is asking a hypothetical question, I don't know and I don't care. I am not an engineer.

THE WITNESS: Will you repeat the question, please?

EXAMINER SPENCER: Will the Reporter read the question, please?

(The question was then read by the Reporter.)

BY MR. McALLISTER:

Q. In your answer, Mr. Bennett, I note that there is a peak on Exhibit No. 8 just immediately following the time of 2:35 of approximately a minute or a little more. Do you notice that, Mr. Bennett?

A. Yes, sir.

Q. In order to obviate the necessity of striking an average over the period that I gave you before will you please confine your answer to just that short period as indicated by that peak just after 2:35 as shown on the chart, which shows, I believe, a flow of energy from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company of about or slightly in excess of 10,000 kilowatts?

A. Then do I understand the inquiry and the assumptions are made for the period of the peak, which I might read as being approximately 2:36 to 2:37?

Q. That is correct. Please limit your answer to just that period of time there.

A. At that time the amount of power being supplied

from the Public Service Electric and Gas Company to the Mechanic Street Substation of the Jersey Central Power and Light Company was slightly in excess of 10,000 kilowatts. The power taken by the Staten Island Edison Corporation from the Mechanic Street substation was approximately 8,400 kilowatts. If the local load amounted to 5,000 kilowatts that would leave a deficit of approximately 3,400 kilowatts, or a little less, out of Mechanic Street substation which would have to be supplied from the Public Service Electric and Gas Company plants.

Q. When that quantity of energy would be flowing in from another source would there be any opportunity for any part of the energy coming from Jersey Central Power and Light Company to flow out over the lines that were supplying the additional load required at the Mechanic Street substation?

A. That quantity of energy would have to be supplied from the system of the Jersey Central Power and Light Company and, therefore, there would be no flow of power from the Mechanic Street substation to the system of the Jersey Central Power and Light Company.

Q. Would it be reasonable under those circumstances to say that from necessity the energy from the Jersey Central Power and Light Company must flow from the Mechanic Street substation to the Staten Island Edison Corporation to supply the load of 8,400 kilowatts which the Staten Island Edison Corporation was taking from the Mechanic Street substation at that time?

MR. PAXSON: What do you mean by "reasonable". Do you mean probabilities? Do you mean reasonable probabilities?

MR. McALLISTER: Reasonable to the mind of an engineer.

THE WITNESS: Some of the energy from the Jersey Central Power and Light Company at that

time necessarily went to the Staten Island Edison Corporation.

MR. McALLISTER: Mr. Examiner, may I ask the Reporter to go back to Mr. Bennett's first answer about two questions back and see if he did not reverse the names of the companies, particularly with reference to the flow of energy from the Jersey Central Power and Light Company?

Will the Reporter read that? And will Mr. Bennett watch it and see if it is correctly stated or if he just misstated it and reversed the positions of those companies?

(The following was then read by the Reporter:)

"A. At that time the amount of power being supplied from the Public Service Electric and Gas Company to the Mechanic Street substation of the Jersey Central Power and Light Company was slightly in excess of 10,000 kilowatts."

BY MR. McALLISTER:

Q. Is that correct, Mr. Bennett?

A. I misstated myself there. That was energy at that time between 2:36 and 2:37. Energy in the amount of slightly more than 10,000 kilowatts was being supplied from the Jersey Central Power and Light Company to the Public Service and Gas Company.

If I said the contrary there, it was unintentional and a misstatement.

MR. McALLISTER: Now, will the Reporter read the complete answer of the witness so he can follow along and see if that happened again in the course of his answer?

"A. At that time the amount of power being supplied from the Public Service Electric and Gas Company to the Mechanic Street substation of the

Jersey Central Power and Light Company was slightly in excess of 10,000 kilowatts."

THE WITNESS: Will the Reporter read the answer again, please? It is rather involved.

(The answer of the witness was again read by the Reporter).

THE WITNESS: I believe that is correct.

EXAMINER SPENCER: You may proceed.

MR. PAXSON: May I interrupt, Mr. Examiner? Can anyone tell me how long the Secretary's Office will be open? I have some papers here that I must file with him?

EXAMINER SPENCER: It is open until 4:30 at least.

MR. PAXSON: I have some papers that I have to file with him.

EXAMINER SPENCER: If you wish, we will take a recess at this time.

MR. PAXSON: Then, suppose we do that. I have these papers which I would like to file.

EXAMINER SPENCER: Will ten minutes be sufficient?

MR. PAXSON: I think so.

EXAMINER SPENCER: Then, we will recess for ten minutes.

(Thereupon a short recess was taken, after which the following occurred:)

EXAMINER SPENCER: Gentlemen, the hearing will now be resumed.

BY MR. McALLISTER:

Q. Mr. Bennett, where the chart shows like circum-

stances with respect to the flow of energy, and if you were to assume the same matters which you did assume in connection with your prior answer, would your answer be the same with respect to those situations insofar as they are shown on exhibit No. 8?

A. Yes, sir.

Q. Now, Mr. Bennett, on page 858 of the transcript Mr. Sibley, in answer to this question which I put to him:

"You would have to take into consideration in that calculation, would you not, the generator at South Amboy which is on the line there?"

Mr. Sibley in answer to that question said:

"Well, we will put that in. I don't know how big that was, but you can put 50 more in so that it would bring it back to 300,000, which I assumed. Now, this draft of approximately 8,400 divided by 300,000 is an increase in load of 2.8 per cent. Now I don't believe an increase in load of 2.8 per cent on any given number of turbines would increase the output of each turbine that 2.8 per cent. That is what I based my reply on."

Now, Mr. Bennett, with respect to that response of Mr. Sibley will you state whether or not in your opinion as an engineer the conclusion expressed by Mr. Sibley is correct?

MR. PAXSON: Just a minute, please. This witness has not qualified as a mechanical engineer, and Mr. McAllister says "as an engineer". Will you please specify what kind of an engineer?

EXAMINER SPENCER: I did not hear the question. I will ask the reporter to read it.

(The question was then read by the reporter.)

EXAMINER SPENCER: The witness may answer.

MR. PAXSON: He is asking him a question as a mechanical engineer, and he is trying to pass upon the accuracy of an answer given by Mr. Sibley. It is true Mr. Sibley said that, but I don't think he is qualified to answer whether it is accurate or not unless he qualifies as a mechanical engineer. He can specify what he means. But that presupposes he would have to have an engineering knowledge upon which to base his answer.

MR. McALLISTER: May I be heard on that briefly, Mr. Examiner.

EXAMINER SPENCER: Yes, Mr. McAllister.

MR. McALLISTER: I want to call attention to the fact that Mr. Sibley, in answer to the question, said specifically at various times in the record that he was not a mechanical engineer. So I assume it does not call for an answer from a mechanical engineer.

EXAMINER SPENCER: The witness may answer the question.

MR. PAXSON: An exception, please.

EXAMINER SPENCER: The exception is noted.

THE WITNESS: Under the condition specified of a 2.8 per cent increase in load on a large system consisting of various power plants in various locations, some near and some remote, which is the condition under discussion, a 2.8 per cent increase in load on the system, if that increase in load is applied at a particular spot as it was in this case, would not cause an increase of 2.8 per cent on every generator on the system. It would cause an increase of load of much more than 2.8 per cent on the generators that are electrically near to the point at which the load is applied and it would produce an instantaneous increase

in load on the remote generators of much less than this amount.

BY MR. McALLISTER:

Q. Mr. Bennett, Mr. Sibley's testimony was that the generator or generators in the South Amboy plant of the Jersey Central Power and Light Company, by reason of the interconnection and the fact that they were delivering energy to the bus at Mechanic Street substation at that time, were on the line insofar as Mechanic Street substation was concerned. Now, Mr. Bennett, as an electrical engineer, with a load of the size referred to by Mr. Sibley, 840 kilowatts, would it have any effect upon the turbo generators in the South Amboy plant which, as the record shows, were distant from the Mechanic Street substation about 2.13 miles.

MR. PAXSON: That is objected to upon the ground this witness has not shown that he has any knowledge of the turbo generators at the South Amboy plant. This is a specific question and not hypothetical, and not expert testimony. If you put a hypothetical question, that is one thing. But this is specific.

EXAMINER SPENCER: Assuming the generators are as they have been described in the record from your recollection of such description and your knowledge of such generators, Mr. Bennett, you may answer the question upon that assumption.

THE WITNESS: As an electrical engineer experienced in the operation of large power systems I know that the addition of the 2.8 per cent load to a large system must be taken care of by some generator or generators on the system and that the instantaneous response to such a load change, or to such an additional load applied to the system, will be heaviest on the machines that are nearest to the point at which

the load is applied and, therefore, there will be a considerable response on the part of the machines in the South Amboy station, regardless of the characteristic, or the electrical and mechanical characteristics of these machines, so long as they are machines of 50,000 kilowatt capacity, so long as they are connected to the point of supply through a heavy electrical circuit.

BY MR. McALLISTER:

Q. And is that conclusion borne out by the chart which was introduced by the respondent as Exhibit No. 8, Mr. Bennett, where at 2:24 there was a sudden load thrown on to the Mechanic Street Substation by the Staten Island Edison Corporation?

A. That conclusion is borne out by the indication of the chart at the point specified.

Q. And how does the chart bear out that conclusion, Mr. Bennett?

A. At the same point in time at which the 10,000 kilowatt load is applied to the Mechanic Street substation from the Staten Island Edison System there is an increase in power supplied to the Mechanic Street station, an abrupt increase supplied to the Mechanic Street Substation of approximately 2,500 kilowatts.

Q. As indicated on the chart by what?

A. As indicated on the chart by the small jog that was made with the needle at what appears to be the same time as the heavy load was applied from the Staten Island Edison Corporation.

Q. Now, Mr. Bennett, how do you account for the fact that the heavy load on Mechanic Street substation represented by the block shown in orange did not continuously during that period impose a heavy load on the flow of electric energy from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company?

MR. PAXSON: That is objected to. How does he know, Mr. Examiner. If it is shown by the chart, that is all right; but if he is speculating, I object. I know that he is qualified to read the chart, but I don't want any speculation as to how he thinks it is accounted for.

THE WITNESS: The conclusions I will state, if I answer the question, will be drawn from the chart.

MR. PAXSON: Then, I have no objection to the question.

THE WITNESS: Will you repeat the question, please?

EXAMINER SPENCER: Will the reporter now read the question, please?

(The question was then read by the reporter.)

THE WITNESS: Throughout the entire length of this chart showing the flow of power from the Public Service Electric and Gas Company to the Jersey Central Light and Power Company,—

BY MR. McALLISTER:

Q. Isn't it just the reverse? You are reading below there again.

A. I beg your pardon.

Q. Now, state it over?

A. Throughout the entire length of the chart showing the flow of energy from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company there are variations, sometimes abrupt, sometimes lasting for a considerable time, which indicate that other influences were affecting this flow of power besides the demand of Staten Island Edison Corporation on the Mechanic Street substation.

It has been shown in the testimony that the flow of power across this interconnection is controlled by the op-

erators who regulate their governors as well as by the load imposed upon the system. Nothing has been introduced in the evidence to show—

MR. PAXSON: I object to that. I don't think this witness is competent to state what is to be deduced from the testimony, Mr. Examiner.

EXAMINER SPENCER: Yes. You may state what the evidence is, Mr. Bennett.

MR. McALLISTER: As a matter of fact, Mr. Examiner, the witness has been present during the course of this hearing and he may continue to answer the question that he has no recollection of hearing any evidence introduced.

EXAMINER SPENCER: He can do that.

MR. McALLISTER: I will say—

MR. PAXSON: If the Commission please, I asked the question what he is going to draw his conclusion from, and he said from the chart. The hearing has taken nine days, and no mind can retain all of this testimony and the implications flowing from nine day's testimony.

EXAMINER SPENCER: I think perhaps Mr. Bennett meant to say that assuming these things were not shown by his recollection of the testimony. That is the purport of what he has testified to, I assume.

MR. McALLISTER: I think that is correct.

EXAMINER SPENCER: But confine this to the actual facts.

THE WITNESS: Now, may I ask the Reporter to read the part of my answer I started?

(The following was then read by the reporter:)

"Throughout the entire length of the chart show-

ing the flow of energy from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company there are variations, sometimes abrupt, sometimes lasting for a considerable time, which indicate that other influences were affecting this flow of power besides the demand of Staten Island Edison Corporation on the Mechanic Street substation.

"It has been shown in the testimony that the flow of power across this interconnection is controlled by the operators who regulate their governors as well as by the load imposed upon the system. Nothing has been introduced in the evidence to show—"

THE WITNESS: I would like to have that portion stricken where I started to say "nothing has been introduced in the evidence to show—"

EXAMINER SPENCER: Yes; that may be stricken.

THE WITNESS: If these other influences which have been testified to continue to operate during this interval—

MR. PAXSON: I object. He said "which have been testified to".

EXAMINER SPENCER: Just state what the influences are, Mr. Bennett.

THE WITNESS: These other influences are load changes on the Public Service Electric and Gas Company and the manipulation of governors by the operator is capable of marking completely any load change which may be imposed upon the substation by power demands made on the Mechanic Street substation by the Staten Island.

BY MR. McALLISTER:

Q. Mr. Bennett, from your knowledge of plant oper-

ation and the manner in which electro turbo alternators operate—

MR. PAXSON: Electro turbo what?

MR. McALLISTER: Elecfro turbo alternators.

MR. PAXSON: Turbo alternators?

MR. McALLISTER: Yes.

MR. PAXSON: But you see, Mr. McAllister, when you look the other way and then turn and get behind this pillar which is between us, I just can't hear you. I don't like to interrupt you, but I do want to hear the question.

MR. McALLISTER: Will the Reporter please read the question as far as it has gone?

(The question was then read by the Reporter).

BY MR. McALLISTER:

Q. From your knowledge of plant operation and the manner in which electro turbo alternators operate, will you state whether or not the station operator can control the quantity of electric energy from one system to another, except insofar as such flow of energy between such systems is affected by a sudden load which is beyond his control?

A. Absolutely. That is one of the important duties of the operator.

Q. In other words, the operators in the generating plants of the Jersey Central Power and Light Company, including the operation of the South Amboy plant, could have so manipulated the turbo generators in those plants so that the flow of electric energy from 12:00 o'clock midnight to 5:00 a. m., as shown on Exhibit 8, would have continued and gradually increased throughout that entire period, if they had so elected?

MR. PAXSON: Just a moment, please. I have no objection to the hypothetical question. I object to

any application of this general theory to the existing stations, because this witness is not qualified to speak as to those.

EXAMINER SPENCER: The Examiner is of the opinion that the witness will have to testify from facts that he has obtained from records. If he has those facts and feels that he can answer the question, he may do so.

Otherwise I was going to say that these same facts can be brought out in a hypothetical question. But I recognize the fact, Mr. Paxson, that in order to do that Mr. McAllister would have to read the facts and then ask the hypothetical question based upon that. That would consume a great deal of time.

I don't think that question is correct, Mr. McAllister.

MR. McALLISTER: I am sure that it is absolutely correct. But strike it out and I can put it in another way. Strike out that question.

EXAMINER SPENCER: I think we can save time.

BY MR. McALLISTER:

Q. As a matter of fact, Mr. Bennett, does it make any difference as to the type of generator that the operator has under his control as to whether or not he can step it up and produce energy in sufficient quantity to force it out beyond his system when that system is interconnected with another system?

A. The ability of the operator to control the output of the turbo generator set is a common characteristic of all turbo generators and, therefore, the operator can always control the output of flow from his station to an interconnection that may be near that station.

Q. Would you require any additional facts beyond

those stated in my prior question before you could express a conclusive opinion as to the result which would have obtained under the conditions which I stated?

MR. PAXSON: I object to labelling the opinion as conclusive. He must express his own opinion. But whether it is conclusive or not the Commission will determine.

BY MR. McALLISTER:

Q. Would you be required to have any additional information than that which I gave you, Mr. Bennett, in order to answer the question which is under consideration?

A. In order to answer the question under consideration I would need only to know the existence of turbo generator sets operating in parallel with another system which also has turbo generator sets across an interconnection of ample capacity to carry the loads under consideration. And assuming those facts or knowing those facts—whichever you please—the conclusions follow.

Q. When Mr. Crumley was on the stand he stated the size of the wire between South Amboy and Mechanic Street. I show you a contract between the Public Service Electric and Gas Company and the Jersey Central Power and Light Company which specifies the interconnection between those two lines connecting South Amboy with Mechanic Street substation, which is Intervener's exhibit No. 2, and I will ask you if the information therein contained is sufficient to enable you to answer the question.

MR. PAXSON: I object to the question. I don't think this man is competent to interpret a contract. Why not give him a hypothetical case? Dig out the facts and give him the facts. I don't know what the question means, and I don't know what the answer will mean.

"Can you draw something from the contract which will justify your conclusion?" In effect, that is what

the question is. It is just not specific enough so that anybody can understand it—at least, not my dull mind.

While he is reading that, may we hear the question again, Mr. Examiner? And I would like to have a ruling on it before he answers the question.

EXAMINER SPENCER: Will the reporter read the question, please?

(*The question was then read by the reporter.*)

MR. PAXSON: Now, what is the question that he is going to answer? He is showing him a contract.

EXAMINER SPENCER: Will the witness tell us the information he gets off of it and use that as a basis of assumption?

MR. PAXSON: May I know what the question is before he answers it?

EXAMINER SPENCER: Yes.

MR. PAXSON: This does not cover it.

EXAMINER SPENCER: He has not said yet whether he can get enough facts from that and assume that they are true. But let's see what he says about that.

THE WITNESS: If the interconnection between the South Amboy Station of the Jersey Central Power and Light Company and the Mechanic Street station of the Public Service Electric and Gas Company is put up substantially in accordance with the provisions of this contract—

MR. PAXSON: What provisions? Be specific now. We can't draw conclusions like that.

EXAMINER SPENCER: If they are put up how?

THE WITNESS: If the interconnection has been erected by the erection of two 3-phase transmission circuits as specified, transformers as specified, oil circuit breakers as specified, then that is evidence sufficient for me as an engineer experienced in the operation of electric utilities to say that the interconnection is of ample capacity to handle the amount of power that is concerned and, therefore, to make certain as to whether or not the operator in the South Amboy station is able to control the flow of power across this interconnection.

MR. PAXSON: Won't you be satisfied with that answer, Mr. McAllister?

EXAMINER SPENCER: Proceed, Mr. McAllister.

BY MR. McALLISTER:

Q. Will you proceed to answer the question as put, Mr. Bennett, expressing your opinion as to whether or not the operator of the turbo generators at the South Amboy plant of the Jersey Central Power and Light Company could have so controlled the flow of energy for the period shown on respondent's exhibit No. 8 so that from 12:00 o'clock midnight until 5:00 a. m. the quantity of energy flowing from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company would have gradually increased over that period instead of having gradually and irregularly decreased, as shown on respondent's exhibit No. 8?

MR. PAXSON: Pardon me, but can you make any sense out of that question? I can't. That is because my mind is dull on these things. I am not criticizing you, Mr. McAllister. Don't get me wrong. But it is so involved that I want to take it slowly. We might be worse off if I tried it.

EXAMINER SPENCER: Will the reporter read the question, please?

(The question was then read by the reporter.)

EXAMINER SPENCER: You may answer the question now, Mr. Bennett.

THE WITNESS: If the interconnection facilities between the South Amboy Plant of the Jersey Central Power and Light Company and the Mechanic Street station of the Public Service Electric and Gas Company is substantially in the form shown in this contract, the operator in the South Amboy Station could have controlled the flow of energy across this interconnection to make it increase or decrease, as desired, during the period from 12:00 o'clock midnight to 5:00 a. m. on August 13, 1936, as specified in respondent's exhibit No. 8.

BY MR. McALLISTER:

Q. Then you would say from your examination of respondent's exhibit No. 8 that that part of the chart in blue representing the flow of energy from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company represented the control of energy from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company by the operator of the generating plants on that line except for those various load swings which occur and which are momentarily beyond the control of the operator?

A. That is correct.

MR. McALLISTER: You may cross-examine.

EXAMINER SPENCER: You may proceed.

MR. PAXSON: If the Commission please, I move that we adjourn until Monday morning. It is now ten minutes to five. I have an important engage-

ment in New York tonight, and also tomorrow morning.

No one anticipated that this hearing would continue this long a time. This is Friday evening, and we would like to be able to attend to some of our work. Furthermore, Mr. Examiner, if I do that I will probably be able to cross examine this witness much more expeditiously; and I may have no questions to ask.

EXAMINER SPENCER: All right, then; we will adjourn until Monday morning.

MR. McALLISTER: Mr. Examiner, I think we might proceed and finish up as much of this case as we possibly can at this time.

MR. PAXSON: That is the same question that was raised last Friday.

EXAMINER SPENCER: Yes. We will adjourn at this time, gentlemen, until ten o'clock Monday morning.

(Whereupon, at 4:50 o'clock p. m., an adjournment was taken until Monday, October 10, 1938, at 10:00 o'clock a. m.)

Washington, D. C.,
Monday, October 10, 1938.

The hearing in the above-entitled matter was resumed, pursuant to adjournment, in Room 1201, Hurley-Wright Building, 1800 Pennsylvania Avenue, N. W., Washington, D. C., at 10:00 o'clock a. m.

Before:
Carroll B. Spencer, Trial Examiner.

Appearances:
As heretofore noted.

PROCEEDINGS

EXAMINER SPENCER: Gentlemen, the hearing will now be resumed.

CLAUDIUS E. BENNETT

resumed the witness stand and, having been previously sworn, testified on behalf of the Federal Power Commission as follows:

Direct Examination (resumed)

THE WITNESS: Mr. Examiner, before the cross-examination is started I would like to state that in my qualifications I omitted saying that I am a registered professional engineer, State of New York, and a Fellow of the American Institute of Electrical Engineer. One is my license to practice and the other is, in effect, the professional committee's opinion of my standing.

MR. McALLISTER: Mr. Examiner, there are a few errors in the transcript in connection with the testimony of Mr. Bennett, which I think might well be straightened out before cross-examination, so there will be no question about it.

EXAMINER SPENCER: All right.

MR. McALLISTER: On page 990, line 16, the words "design of minor construction" should be "design and minor construction." It is not of great importance, but, at the same time, it does change the sense somewhat.

Have you any objection to that change?

MR. PAXSON: Not if Mr. Bennett says that is what he said.

THE WITNESS: That is what I intended to say.

MR. McALLISTER: On page 992, line 12, the

name "Ebro Light and Power Company" should read "Ebro Irrigation and Power Company."

Is that correct, Mr. Bennett?

THE WITNESS: That is correct?

MR. McALLISTER: On page 993, line 22, it reads "including a course in devising transmission theory and a graduate course."

It should read "including a course in advanced transmission theory," shouldn't it, Mr. Bennett?

THE WITNESS: That is correct.

MR. McALLISTER: Instead of "devising" it should be "advanced"?

THE WITNESS: That is correct.

MR. McALLISTER: That is four lines from the bottom on page 993.

The next is on page 1000. It reads "a sudden rise in voltage." It should read "a sudden rise in load taken."

THE WITNESS: That is correct.

MR. McALLISTER: On page 1007, line 22, "compilation" should be changed to "computation."

THE WITNESS: That is correct.

MR. McALLISTER: It is the second word on the 4th line from the bottom which should be "computation" instead of "compilation."

The next to the last word in that same line should be "transient" instead of "tranchant."

On page 1010, line 16, the word "flowing" appears. It should be "slowing."

THE WITNESS: That is correct.

MR. McALLISTER: On page 1029, line 12, it

reads "For visual comparison one month in his mind multiply the scale," but it should read "For visual comparison one must in his mind multiply the scale."

THE WITNESS: That is correct.

MR. McALLISTER: On page 1035, lines 1 and 2, the terms "Public Service Electric and Gas Company" and "Jersey Central Power and Light Company" have been interchanged, it appears.

Now, Mr. Bennett, I will read that to you. I am going to read the correction on page 1035, but I am beginning to read on page 1035, the beginning of your answer being on page 1034:

"A. At that time the amount of power being supplied from the Public Service Electric and Gas Company to the Mechanic Street substation of the Jersey Central Power and Light Company was slightly in excess of 10,000 kilowatts." But it should read:

"A. At that time the amount of power being supplied from Jersey Central Power and Light Company to the Mechanic substation of Public Service Electric and Gas Company."

Isn't that correct?

THE WITNESS: That is correct.

MR. McALLISTER: I just thought it would be better to correct those matters before cross-examination so that there will be no question about it.

EXAMINER SPENCER: Is that all, Mr. McAllister?

MR. McALLISTER: That is all I have now.

EXAMINER SPENCER: Before you begin your cross-examination, Mr. Paxson, the witness wishes to supplement his testimony as to his qualifications. He

just made a statement to me which was put into the record, so I shall ask the Reporter to read it:

The following was then read by the Reporter:

"THE WITNESS: Mr. Examiner, before the cross-examination is started I would like to state that in my qualifications I omitted saying that I am a registered professional engineer, State of New York, and a Fellow of the American Institute of Electrical Engineer. One is my license to practice and the other is, in effect, the professional committee's opinion of my standing."

BY MR. McALLISTER:

Q. Did you mean as an electrical engineer?

A. Yes.

BY MR. PAXSON:

Q. When did you become a registered professional engineer?

A. I beg your pardon.

Q. When were you licensed to become a registered professional engineer in New York?

A. I will have to answer from memory on that. I think it was in 1934, but I will not swear to the date.

Q. Well, just approximately. It is not important. You are a registered professional engineer?

A. Yes.

EXAMINER SPENCER: You may proceed with your cross-examination, Mr. Paxson.

MR. PAXSON: Mr. Examiner, before we proceed, is the direct case all in? In other words, they introduced here some changed or reconstructed graph for identification, but it has not yet been offered. If it is not going to be offered, or admitted I am not going to cross-examine about it. It is certainly not my exhibit as reconstructed.

EXAMINER SPENCER: Are you prepared to offer that exhibit now, Mr. McAllister?

MR. McALLISTER: At this time, Mr. Examiner, I offer as Commission Counsel's Exhibit No. 20 the chart identified by the witness showing the area indicated on the map between the period of 2:20 a. m., and 4:00 o'clock a. m., in such manner as to set forth the ordinates showing the flow of energy from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company on the same scale as that used in showing on the upper half of the chart the flow of energy from the Public Service Electric and Gas Company to the Staten Island Edison Corporation, and I will ask that it be received in evidence. I think the witness has made clear that what was done was to take Exhibit No. 8 as introduced by Respondent and merely superimpose upon that exhibit No. 8 of the Respondent the changed diagram necessary to place that part of the chart which was reconstructed upon a basis whereby direct comparison can be made with the upper part of the chart.

EXAMINER SPENCER: May I have a copy of that exhibit?

MR. McALLISTER: Yes, Mr. Examiner; here is a copy of the exhibit.

EXAMINER SPENCER: Have you any objection, Mr. Paxson?

MR. PAXSON: If the Commission please, I object most strenuously to the admission of this graph, as changed, in the record as any part of the evidence in this case. It shows on its face, and it has been testified to by Mr. Bennett, that this is only a partial change, and I think its inclusion herein would create

an entirely false construction or interpretation of this map.

We have here a graph at the top on one scale and down at the bottom parts on one scale and parts on another. So it makes it absolutely impossible to read it or gather anything of any import from the graph.

If they wish to reconstruct this in its entirety, that is one thing. To offer this as any evidence of anything either they have to do it entirely or not at all.

Therefore, I object to it as not being persuasive or probative of anything. We cannot have a graph which is one scale as to part and one scale as to another part and draw any correct conclusions whatsoever.

MR. McALLISTER: The record shows perfectly clearly, Mr. Examiner, that the only part that we have changed is that part which I stated, from 2:20 a. m. until 4:00 o'clock a. m. And the reason it was not completed in its entirety was that we did not have the time, thinking that it would be necessary to put this thing in and feeling that the case would be closed on Friday. But before we adjourned on Friday the proposition was put to Mr. Paxson by the witness, in which he said, "We will complete the chart over Saturday and put it in on Monday for the whole thing or we will have the thing photostated and get you a copy in New York some time on Saturday. Now, it is impossible to do both things. We will do whichever you want."

And Mr. Paxson said "We would like to have a copy of it tomorrow."

MR. PAXSON: We wanted a copy of the one with the notation that they wanted to appear on it. They stated a few days ago that photostating would

take only about five minutes. I don't think that is any excuse for not reconstructing this thing in toto. I think that is absurd.

EXAMINER SPENCER: Mr. Bennett, are the readings on this map and the one from which it was made the same? In other words, other than extending these lines have any other changes been made?

THE WITNESS: No changes have been made except—

EXAMINER SPENCER: And the readings will be the same on each?

THE WITNESS: No changes have been made except to create a new addition to Respondent's Exhibit No. 8 by putting in a curve in which the ordinates within the part extended are three times as high as the other. But during my testimony the readings which I took were entirely from the curves presented by Respondent, the other being simply for graphic presentation.

MR. PAXSON: We have here this legend "Vertical scale of curve below has been enlarged here threefold by Federal Power Commission. Scale figures shown in green."

You have a false legend there. Anyone reading that would take it that it is the entire scale and the entire graph.

That is a further objection to the admission of it in evidence.

EXAMINER SPENCER: The Examiner will admit this in evidence with the provision that it be completed, within a time to be specified later, and made to show the reading of the lower map all to the same scale, and that the requisite number of

copies be filed as required for exhibits by Commission Counsel.

MR. McALLISTER: Mr. Examiner, I would like to have you take the time now, if you will, please?

EXAMINER SPENCER: How long will it require to prepare it? It may be filed after the hearing.

MR. McALLISTER: What time, then, Mr. Bennett? A week from today?

THE WITNESS: As I understood the draftsmen, they said it would be about ten hours work to do the whole job.

BY MR. McALLISTER:

Q. It is a question of getting the draftsmen and working it in with the other work?

A. That is right.

Q. And we can do it a week from today?

A. Yes.

Q. And have it photostated?

A. Yes.

EXAMINER SPENCER: The completed copies will be filed on or before October 17th.

MR. McALLISTER: On or before October 17th and identified as Exhibit 20-A?

EXAMINER SPENCER: Identified as Exhibit 20-A, with copies to be furnished to opposing counsel, of course.

MR. PAXSON: Of course, in that event I trust the hearing will be over. There will be no opportunity for me to cross-examine. They could put anything on it they please.

EXAMINER SPENCER: It is true the hearing

will be over and you will not have an opportunity to cross-examine.

I take it the readings on both of these charts are the same. I do not want to deprive you of any right of cross-examination. But it seems to me that your cross-examination would be the same from this map as it would from a completed map. The witness testified it was merely to get a visual idea or picture of the two lines on the same scale.

Let the record show that the chart to be filed on or before October 17th is to be received as Commission Counsel's Exhibit 20-A, supplementing Exhibit No. 20.

(Attention was called to the fact that an exhibit had been introduced and assigned to No. 20 and that this one under discussion could not be assigned that number.)

Well, this chart will be referred to as Commission's Exhibit No. 21 and the one to be filed on or before October 17th will be received as Commission Counsel's Exhibit 21-A, supplementing Exhibit No. 21.

You may proceed with your cross-examination, Mr. Paxson.

Cross Examination

BY MR. PAXSON:

Q. Mr. Bennett, Respondent's Exhibit 8 is constructed how?

A. I didn't understand your question.

Q. Respondent's Exhibit No. 8, the original graph that we put in, was constructed how? What is it?

A. Respondent's Exhibit No. 8 is a photostat of the original graphic meters record for the period in question.

Q In other words, it is a photostat of recordations made by machines at the plant of the Public Service Elec-

tric and Gas Company at Mechanic Street? That is correct, isn't it?

A. That is correct.

Q. So there can be no question at all as to the accuracy of Respondent's Exhibit No. 8?

A. This is an accurate copy of what the meter recorded, but it is not necessarily an accurate copy of what occurred, due to instrument error. Except for instrument error it is an accurate copy.

Q. Aside from that possible exception it is, as you say, accurate? It is done by a machine?

A. It is a photostat of an original record.

Q. Which is done by a machine.

A. Of an original record which was made by a graphic instrument.

Q. Whereas this reconstructed portion which someone has superimposed— You did not do it yourself, did you?

A. No, sir. It was done by a draftsman.

Q. You had that done by a draftsman?

A. Yes.

Q. This reconstructed portion which someone has superimposed upon this graph may have all kinds of human errors in it, depending upon the expertness of the draftsman?

A. I will not agree to the "all kinds of error," because I checked it.

Q. You checked it yourself?

A. Yes.

Q. And you think this is accurate?

A. This is accurate.

Q. And to the scale?

A. This is accurate and to the scale within the range of ordinary drafting.

Q. Let's see what you did. You say you extended the ordinates? Is that right?

A. Each ordinate on the graph as submitted by

Respondent was multiplied by three and a new point located above so as to bring it to the same scale as the other graph.

Q. What do you mean by ordinate?

A. By "ordinate" I mean the distances measured vertically on the diagram.

Q. Has any change been made in the scale laterally. If the ordinates are longitudinal we have a scale we call a lateral scale which shows the time element.

A. The lateral scale which we ordinarily refer to as abscissae— The abscissae, representing time, was not changed at all.

Q. You have checked this map to ascertain that fact, have you?

A. I have checked points vertically to see that the point as drawn by the draftsman is three times the height of the corresponding one on the original chart, and since there was no tampering at all with horizontal lines there can be no change of scale in the horizontal direction.

Q. But you did not check this map to see whether or not there were any errors in the abscissae?

A. I checked the construction of the map and I checked individual points on the graph for accuracy. Otherwise I couldn't have sworn to the accuracy of the graph unless I had checked it in every way that error could come in.

Q. I am still asking you whether or not you checked the abscissae to see whether or not they were on identically the same scale as the graph which was submitted by Respondent as Exhibit No. 8?

A. The horizontal scale or abscissae is to identically the same scale as the original.

Q. You have pretty good eyes for reading maps, haven't you, Mr. Bennett?

A. I am not an oculist.

Q. How is that?

A. I am not an oculist.

Q. You are not a what?

A. An oculist.

Q. You are not an optimist?

A. I am not an oculist. I am not an eye expert.

Q. Well, let's get away from technicalities. Your eye sight is pretty good, isn't it?

A. My eye sight?

Q. Yes. It is pretty good?

A. Yes.

Q. Otherwise you could not have checked this very well with any idea of accuracy?

A. That is correct.

Q. Just cast your eyes over this reconstructed part superimposed upon Exhibit No. 8 and then compare Exhibit No. 8 as originally introduced for the period 2:24 a. m., that little line there which you testified as representing some 2500 k. w. I am just using that last reference so as to aid you in quick identification.

A. Okay.

Q. Do you think or do you tell me that the dimension and the width of that line is the same on both maps?

A. Are you referring to the width of the line in the original chart on power supply from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company and the width of our reproduction of that line to the larger ordinate?

Q. Yes.

A. And your question is whether the width of the line is the same?

Q. Yes.

A. Within the limits of ordinary drafting; yes, sir.

Q. There is quite a difference between the limits of ordinary draftsmanship and what the instrument records?

A. I am examining it under a reading glass, and if

there is a difference it is so small I cannot measure it under a reading glass.

Q. Those ordinates which stick up like spearheads all along there, aren't they all thicker and don't they create the impression of a much longer period of time under which there was a flow of energy than appear on the graph as submitted by Respondent?

A. I don't think so.

Q. You can't see any difference?

A. From the ones I have examined so far I do not find a measurable difference.

Q. Can't you use a millimeter scale?

A. That is what I am using.

Q. And have you inspected it right here?

A. I have measured them with a millimeter scale.

Q. And you cannot find any difference?

A. So far I have not found any difference large enough to measure or any differences which are not well within the range of ordinary draftsmanship.

Q. What is the range of ordinary draftsmanship? Of course, on our graph it looks just like a little whisker. The other looks much thicker.

A. To which one do you refer?

Q. I am talking about the one you testified to as showing a surge of power from the Jersey Central Power and Light Company to the Public Service Electric and Gas Company at about 2:24 a. m.

A. If you see any material difference in the original and the reproduction your eyesight is apparently better than mine.

Q. I am not going to argue with you as to whose eyesight is the better. We would have to get an oculist, as you say, to determine that fact. But, in any event, Mr. Bennett—

Let's get at it in this way—there has been no effort made in reconstructing this portion of the map to change

the scale in any way, that is, what I call the lateral and what you call the abscissae? To construct this map properly you should extend the ordinates three to one on the width of the lines? Correct me if I am wrong?

A. That is correct.

Q. The projections should be identical with those on the graph we submitted?

A. That is right.

Q. To keep the map on scale?

A. That is right. That is what we attempted to do.

Q. Now, Mr. Bennett, when you were stating your experience I believe you told us that you spent considerable time—and you gave the dates, so I will not characterize the time—on some Spanish properties.

A. That is correct.

Q. And some Mexican properties?

A. That is correct.

Q. That was about the extent of your experience other than some earlier experience as a cadet with Westinghouse and some time with— Was it the Utah Power and Light?

A. Do you mean with holding companies or with high tension transmission systems?

Q. I did not mention holding companies, and I don't know that you did either.

A. No, I don't remember, except the companies you enumerated were all holding companies, although my experience with high tension transmission systems is also outside the holding company groups.

Q. But in 1928 you changed your employment and became a professor or teacher or instructor?

A. That is correct.

Q. You are now employed by the Federal Power Commission, I understand?

A. That is correct.

Q. Tell us the nature of your duties with the Federal Power Commission?

A. Those duties vary considerable according to the assignment and the work that I have been doing. The major employment I have had since I have been here has been on transmission and distribution problems.

Q. To whom do you report?

A. Mr. Tate.

Q. Mr. who?

A. Mr. Tate, the chief of the division of Gas and Electric Resources, in the engineering department under Mr. McWhorter, chief engineer.

Q. You say you report to Mr. Tate or to Mr. McWhorter?

A. I report to Mr. Tate, who is chief of the division of Gas and Electric Resources in the Engineering Department, which is headed up by Mr. Roger McWhorter.

Q. You say your work is largely on distribution and transmission problems?

A. Yes.

Q. Will you be more specific about that? Of course, I am not asking you to divulge anything of a secret or confidential character, if there is such?

A. I would have to decline on my present work.

Q. You would what?

A. I would have to decline on my present work just because of the item you mentioned—of a confidential nature. But my previous job was in connection with the Bonneville, in which I laid out a transmission system, studied interconnections, power exchanges and power supply for Bonneville to connect up the Puget Sound system, the City of Seattle Municipal Plant, the Takoma Municipal Plant, the Washington Gas and Electric Company, the Portland General Electric, the Northwestern, the Mountain States Power Company, the California-

Oregon Power Company and Washington Water Power Company.

Q. You say you were laying out all of these systems?

A. I was laying out a transmission system for Bonneville.

Q. A proposed system?

A. A proposed transmission system for Bonneville to connect and supply and permit a supply of power to these systems to operate in parallel.

Q. That is P. W. A., isn't it? That is not within the jurisdiction of the Federal Power Commission, is it?

A. I was only responding to your question. You asked me what work I had done for the Federal Power Commission and I was telling you what work I did for the Federal Power Commission.

Q. Now, Mr. Bennett, tell me something about the size of the power systems with which you have had experience or that you testified as having had experience with in Spain and Mexico, or any others with which you have had experience, by which I mean employed by them. I am not talking about Bonneville now or the P. W. A.

A. You are not referring to interconnection studies?

Q. I am talking about the systems you actually worked for.

A. You are inquiring about systems I actually operated?

Q. With which you were connected, whether you operated them or not. If you did, all right.

A. The Spanish property was quite a large group. It consisted of quite a large group of plants in the Pyrenees and on the rivers running out of the Pyrenees, and three steam plants on the Barcelona end on our system, 110,000 volts and 88,000 volt transmission lines connecting them. One of the systems with which we were interconnected operated at a high voltage, although I do not remember the voltage at the moment. The transmission distance was

something in excess of over a hundred miles from their group of plants.

Q. I was thinking more of the capacity of the generators.

A. The capacity of the generators of the Ebro system itself was somewhere between 200,000 and 300,000 kilowatts. I don't recall the exact figure.

Q. Do you mean the aggregate capacity?

A. Yes.

Q. How many plants did they have?

A. How many plants?

Q. Yes.

A. Large and small?

Q. Yes.

A. I don't recall. I would have to count them.

Q. What was the capacity of the plant?

A. The capacities ranged from little fellows of almost negligible capacity up to the largest one in the group which in a single plant was, I believe, 48,000 kilowatts.

Q. Were these plants steam driven or were they driven by hydraulic turbines?

A. Both. We operated both hydro and steam.

Q. Of which did you have the more?

A. There were more hydro than steam in that particular system.

Q. It was chiefly a hydro system, wasn't it, with a few steam stand-bys?

A. It was chiefly hydro with some steam plants. The major part of the production—if you wish that—over the year's period was from hydro sources.

Is that what you mean?

Q. That is what I mean. That is what I was trying to get at. Now, how about the system in Mexico? What was the capacity there?

A. If I had anticipated this line of questioning I

would have checked up the exact capacity for all those. My memory is hazy on that.

Q. I don't blame you. I am not going to hold you to details. I am not going to try to impeach you in any way.

A. If we do not take into consideration the steam capacity which we were constructing at the time the Mexican system was between 150,000 and 200,000 capacity, I believe.

Q. Was that hydro or steam?

A. Both.

Q. Was it, like the Spanish properties, largely hydro?

A. It was predominantly hydro, with high tension transmission connecting to the steam system, which incidentally introduces much more serious problems than operating a straight steam system.

Q. Now, Mr. Bennett, page 999 of the record you state near the middle of the page that the impedances of the lines would affect very greatly the amount of energy that is instantly picked up when a sudden demand comes on the line.

Will you please explain what you mean by "instantly picked up" and how long a duration of time you refer to?

A. By "instantly" I mean as the word implies, right away, as quickly as the load had to be supplied. When the load comes on it has to be supplied from some source, and if it is supplied electrically it is supplied instantly.

Q. For how long a duration of time? You say it is instantly picked up. Of course, we all know instantly is as quick as possible or right away.

A. That is right.

Q. I just wanted to get your idea.

A. That is right.

Q. What is the duration of time to which you refer? You say it is instantly picked up. How long a period of time is it?

A. I don't understand the question. If it is instantly picked up, how long a time is it picked up?

Q. How long a time does it stay picked up? We are talking about impedances now as affecting very greatly the amount of energy.

THE WITNESS: Now, will you please read those last two or three questions.

(The questions were then read by the Reporter.)

THE WITNESS: The use of the word "instantly" in that connection referred to—

May I strike that?

EXAMINER SPENCER: Yes.

THE WITNESS: The duration of time during which the load carried is very largely determined by impedance alone?

Q. Then the duration of time—Let's see if this is correct, and remembering I am not an engineer but you are, and I am just trying to get the idea. The duration of time, then, would exist over the period of transient conditions, I believe you used that term in your testimony.

A. Yes. Whenever a load change comes onto a system there is a series of changes which take place, and the final adjustment of load may or may not be reflected in initial conditions. Final disposition may involve manual operation which will cause the load which is initially picked up by machines nearby to be transferred by relaying or otherwise to distant machines.

Q. Then the period of transient conditions would not exceed more than five seconds, would it?

A. The period of time during which the distribution of load is determined entirely by impedances or very largely by impedances in general would not exceed five seconds.

Q. On page 1001 you testified that the sudden load on Mechanic Street due to Staten Island Edison Corporation would have an effect on the power delivered by the Jersey Central Power and Light Company to the Public Service Electric and Gas Company and that there was a rise of load at this particular time amounting perhaps to 2500 kilowatts. That was your estimate from reading the graph, as I recall.

A. Yes.

Q. Now, correct me if I am wrong; but I think I have almost copied your language. You stated further that this is an abrupt increase in power from Jersey Central Power and Light Company to Public Service Electric and Gas Company amounting to approximately 2500 kilowatts at the same time that this sudden demand came on Mechanic Street substation. I think I have quoted you about correctly, haven't I?

A. The general drift is correct, I believe.

Q. I am not trying to tie you up on any particular word. The record speaks for itself as to what you said. I am just trying to get your idea as a premise for further questions.

Now, Mr. Bennett, will you please state how long this sudden demand existed and how much electrical energy expressed in kilowatts is represented by this mark? And I would prefer that you use the graph now that we put in, which is machine made, rather than allowing even for that possible latitude of error which is normal with a draftsman.

A. What apparently occurred in this case is that this load was thrown instantly on the South Amboy generating station, which slowed down the machine sufficiently to cause the governors to act and carried this 2500 kilowatts to which I have testified. Then, after a short interval of time, this load was shifted away from the South Amboy station. Whether this shift was manually or other-

wise brought about is not clear and cannot be established from the record.

Q. You mean from the chart?

A. I mean from the chart. I beg your pardon. I should have said from the chart.

Q. I don't want you to draw any conclusions from the record, if you mean thereby what other witnesses have testified to.

A. The chart does not show the cause or the reason for this power being shifted away from South Amboy.

The amount of kilowatt hours supplied, 2500 kilowatts for a short time, does not make a large number of kilowatt hours.

Q. I think you are capable of telling us with a pretty fair degree of accuracy, in view of all your experience. You certainly understand the use of a slide rule and a millimeter scale. Let's take that little whisker, as I call it, or that little pen line, and see if we can't determine, within the limits of the chart, of course, how many kilowatts are represented.

First of all, each division on the chart is five minutes, isn't it?

A. That is right.

Q. Have you a slide rule there?

A. Yes.

Q. What is your answer?

A. The amount of actual power which was supplied by Jersey Central Power and Light Company in this case to maintain the speed of the system until such time as the demand could be supplied from other sources was not great. It was probably of the order of 20 kilowatt hours. Twenty kilowatt hours supplied at a rate of 2500 kilowatts was effective in assisting to maintain the speed of the system in this section at that time.

Q. When you estimate or when you say not more than 20 kilowatt hours, what time?

A. I don't think I used that phrasing. I said of the order of 20 kilowatt hours.

Q. Of the order of 20 kilowatt hours?

A. Perhaps more or perhaps less.

Q. Can't you fix it more accurately than that with your instruments and training in your profession?

A. That is more accurate than the chart that you supplied.

Q. That does not answer my question—which is more accurate. Do you mean your instruments are more accurate than the chart?

A. I mean the calculations are more accurate than the chart.

Q. Let's have the time. You told me your estimate of the kilowatt hours. What time did you use to reach that approximation of 20 kilowatt hours?

A. I estimated it at a little less than a half-minute.

Q. You estimate it at a little less than a half-minute?

A. Yes, sir.

Q. Using your millimeter chart, you are not sure that it is so much less than that?

A. No. Due to width of pen and inherent errors of the meter I cannot testify more accurately than that to time intervals.

Q. Then, Mr. Bennett, take your assumption of about a half-minute—did you say?

A. How is that?

Q. Did you say a half-minute?

A. I think I said a little less than a half-minute.

Q. Taking your assumption that it was a little less than a half-minute, Mr. Bennett, do you think an operator would manually make this change within the time estimated?

A. If the operator is out of—I mean if the operator is at the side of the switchboard, this is well within the time that an operator would require for making the ad-

justment. If the operator were in a distant part of the room he would not make it so quickly. I don't know where the operator was at the time.

Q. Naturally, you do not.

A. No, I do not.

Q. As a matter of fact, you don't know anything about these plants except from such information as you obtained from reports, as I understand it.

A. I have testified throughout this record, as I have repeated at various times, as an expert speaking from sworn testimony regarding the things, which is the manner in which an expert practically always testifies, because if a man testifies to the size of the line it is very seldom that the man has any personal knowledge of the size of the line. To obtain any such personal knowledge he would have to climb poles and measure the size of the conductors, then go ahead with his wire gauge back to the laboratory and check the accuracy of the gauge. But it would not have been possible to measure the line at one particular spot but he would have to measure every piece of conductor if he was going to testify to the size from his own knowledge.

Q. I was just trying to bring out a few facts, and I am not disputing the fact that you are an expert. I have a great deal of respect for your ability.

A. I am only trying to explain.

Q I am not in any way attacking you as an expert, Mr. Bennett. I was only trying to bring out some facts.

A. I am only trying to explain that in testifying I have had access to all of the records needed for the purpose as to which I have testified, and I have not extended my testimony beyond the range of what I had information on.

Q. Going back to this graph which your said had errors due to margin of error which would be insignificant or infinitesimal, you engineers can figure even a millionth

of a second. There are instruments that do that, aren't there? It seems almost incomprehensible to me as a mere layman. But isn't that true?

A. What do you quote me as saying about the errors of the graph?

MR. PAXSON: Let the reporter read it. I am not trying to mix you up on language or words. I am just trying to get some things here in my crude way as a lawyer.

(The last question was then read by the Reporter.)

THE WITNESS: I believe in referring to the errors of the instrument I declined to say that your graph was absolutely accurate. I insisted that it was only an accurate copy of the record which was presented and which was made by the instrument and which might have all kinds of instrument errors. I do not recall that I testified to any statement that there were instrument errors.

Q. Well, that is agreeable to me. I don't know that you did either. If there is an error in the instrument is not the line shown on this graph that we are directing our attention to, and what I call a little whisker, actually wider than the time interval of the surge?

A. It might be or it might not be.

Q. It probably would be because of the lag in the instrument, wouldn't it?

A. Unless that is compensated for by a failure of the paper to move at that particular instant.

Q. Isn't it true, Mr. Bennett, that at about 2:24 a. m. the conditions on the Staten Island Edison Corporation were abnormal because of the cable failure on the 33 k. v. system of the Staten Island Edison Corporation at that time?

MR. McALLISTER: I don't believe this witness has testified about any cable failure on the system of the Staten Island Edison Corporation.

MR. PAXSON: If he does not know, all right. I am just asking him.

EXAMINER SPENCER: Can you answer that question?

THE WITNESS: Will you read the question, please?

(The question was then read by the Reporter.)

THE WITNESS: The record shows that there was an unusual demand from Staten Island Edison Corporation at that time. I beg your pardon. I don't mean to say "record"; I mean the chart. Respondent's exhibit 8 shows that there was an abnormal demand from the Staten Island Edison Corporation at that time. But I did not testify as to the reason for that demand.

BY MR. PAXSON:

Q. You don't know what the nature of the abnormal demand was, whether it was a cable failure or not; but it was abnormal?

A. As I recall the testimony, your witness was asked about that, because we were rather curious, and he testified that he didn't know.

Q. Now, Mr. Bennett, directing your attention again to respondent's exhibit No. 8, that upper portion of the graph which shows the electric current from the Public Service Electric and Gas Company to the Staten Island Edison Corporation there appears at about 2:24 a. m., a draft, I believe of something over 10,000 kilowatts. Will you please state the duration of that draft, as shown by the graph, of course?

A. I would estimate the duration of that draft as perhaps a minute, more or less.

Q. Directing yourself again to the lower portion of the graph, then isn't it true that the additional power furnished to the Jersey Central Power and Light Company about 2:24 a. m. for a period of a few seconds, more or less, was furnished during the transient conditions about which you spoke, Mr. Bennett?

A. No, that does not refer—or at least I was not referring to transients as something that happened a half minute, as this apparently did.

Q. You do not call that a transient condition?

A. That wasn't transient in the sense of the instantaneous response.

Q. But you say the graph indicates it was an abnormal condition which terminated very rapidly, apparently.

A. I said the graph indicated a heavy demand for energy from the Jersey Central Power and Light Company, a large amount of power supplied, something of the order of 10,000 kilowatts.

Q. Are you talking about the upper part of the graph or the lower part of the graph?

A. I am talking about the power supplied from the Public Service Electric and Gas Company to the Staten Island Edison Corporation during this minute you were just inquiring about.

Q. You don't call that transient?

A. No.

Q. I am talking about the power furnished by the Jersey Central Power and Light Company to the Public Service Electric and Gas Company on the lower part of the graph as indicated by this little whisker, as I call it, or this little line. Doesn't that reflect merely a transient condition, with the time being so slight?

A. I think I have stated already what I mean in re-

ferring to the instantaneous or transient effect. This is in excess of that time.

Q. If your computation is correct as to the time involved?

A. That is correct.

Q. If it was a matter of not a half-minute but of five seconds or ten seconds, and if that is the correct computation of that line, what would you say?

A. I do not admit that that is the correct computation of it.

Q. I said assuming that it was. I know you do not admit it, but I am asking you to. You have given us your estimate.

A. I believe I limited transient to something like five seconds as an outside figure.

Q. How would a transient condition show on Exhibit No 8, Mr. Bennett?

A. It might not show at all.

Q. And again it might?

A. It might.

Q. You do not have enough knowledge of these recording instruments to tell in your own mind whether or not it was so?

A. Will you repeat that question?

Q. I say, Mr. Bennett, you do not have enough knowledge of these recording instruments to tell in your own mind whether or not it was so?

A. It would depend entirely upon the duration of the transient after it was recorded.

Q. Of course, that is correct. But we were talking about a transient, and you gave us your opinion as to the time element involved. I am now asking, Mr. Bennett, whether with your knowledge of this type of recording instrument it would not show.

A. A very short transient will not show on an instrument of this sort. A transient a little bit longer may

show as only a portion of its true magnitude.

Q. A transient a little bit longer may show as only a portion of its true magnitude.

A. A transient a little bit longer may show as only a portion of its true magnitude.

Q. What is that due to, Mr. Bennett? Is it due to lack of knowledge?

A. It may be due to inertia of parts of the instrument or it may be due to the characteristics of the connecting circuits.

Q. From your knowledge of these recording instruments would you say a transient of five seconds would show?

A. What type of instrument is this?

Q. I am asking you. You are an expert and have a whole lot more knowledge than I. You profess to know the type and testified to them, at least on cross examation.

A. I haven't testified.

Q. I am not being cross examined. I admit I don't know.

A. Neither do I.

Q. Now when this condition, as shown by this little line at 2:24 a. m. had ceased, had normal or transient condition, whatever it is, I am not going to quarrel with you about that, it was within a few seconds, the increased flow of power from Jersey Central to Public Service Electric and Gas Company also disappeared, as shown by the chart, didn't it?

A. Is that a question?

Q. Yes.

A. Will you read it, please?

MR. McALLISTER: Is this question, Mr. Paxson, related to the testimony the witness has given this morning? You say a few seconds. I don't recall

any such testimony. Are you quoting him or are you injecting another element into the question?

MR. PAXSON: I don't think I am injecting a thing. He is an expert.

MR. McALLISTER: A few seconds, as stated by him. I didn't hear any—

MR. PAXSON: (interposing) He has already testified.

EXAMINER SPENCER: Read the question.

(The reporter thereupon read the pending question as recorded.)

MR. McALLISTER: As long as the witness understands the statment made as to a few seconds relates to whatever his testimony actually was, I have no objection.

EXAMINER SPENCER: Proceed.

THE WITNESS: If the statement of few seconds refer to my testimony, I am afraid I have been misquoted, because I testified I estimated the duration of this supply from Jersey Central at a little less than half a minute.

BY MR. PAXSON:

Q. Wasn't that a few seconds?

A. I would not say so.

EXAMINER SPENCER: Whatever it was.

BY MR. PAXSON:

Q. Answer the question, whatever it was.

A. At the end of this time the power was transferred away from the South Amboy Station, whether by mechanical action or by manipulation of the operators, I can't tell.

Q. It is true, isn't it, that this additional power flow you estimated at, I believe, about 20 kilowatt hours, is an amount of energy to be insignificant?

A. Not if the function the energy supplies is important, the amount of it is not a measure.

Q. In large systems like these with millions of kilowatt hours, as testified to, would you not call 20 insignificant?

MR. McALLISTER: That question, Mr. Paxson, of millions, over what period of time?

MR. PAXSON: Well, the period of time appears on the map he testified about.

MR. McALLISTER: Not on this chart.

MR. PAXSON: On this chart.

MR. McALLISTER: Not on this chart.

BY EXAMINER SPENCER:

Q. Do you know how much energy is involved, Mr. Bennett?

A. I have already made an estimate of the number of kilowatt hours which was supplied and I have already made an estimate of the amount of power that was supplied.

BY MR. McALLISTER:

Q. Mr. Bennett, with respect to what over the length of this chart, over a month, week or year, or anything of that kind have you related what is shown on this chart?

MR. PAXSON: Who is cross examining the witness?

MR. McALLISTER: I don't want this record to be complicated by a misunderstanding of the question.

MR. PAXSON: I don't want him to misunderstand the question either.

THE WITNESS: Is there a question pending?

MR. PAXSON: I think so.

EXAMINER SPENCER: Read the question.

(Thereupon the reporter read the pending question as recorded.)

EXAMINER SPENCER: You may answer the question, Mr. Bennett.

THE WITNESS: When 20 kilowatt hours is applied at a very rapid rate making a heavy draft of power, as in this case, it is important regardless of whether it is to a big system or a little one.

MR. McALLISTER: Read that, I didn't hear it.

EXAMINER SPENCER: Read the answer.

(Whereupon the reporter read the answer as recorded.)

EXAMINER SPENCER: Proceed, Mr. Paxson.

BY MR. PAXSON:

Q. On page 1003 of the record—

MR. McALLISTER: What page is that?

MR. PAXSON: 1003.

EXAMINER SPENCER: 1003.

BY MR. PAXSON:

Q. You stated, I believe, that as the lines between South Amboy, Mechanic Street Substation, are lines of considerable capacity, and therefore the power which flows instantaneously on the occurrence of a sudden demand will be drawn from the various available sources, including

South Amboy, will you kindly state what you mean by flows instantaneously, for what duration?

A. Instantaneously in this case has the same significance I have applied to it in previous testimony.

Q. That would be about five seconds, I believe you said before?

A. Five seconds, something of that order.

Q. That is what I mean. Now on page 1007 you testified in case of plants of the same capacity, same generating characteristics, the difference in amount of power instantaneously picked up would be fixed by the impedance characteristics of the connecting lines and generators, and therefore the plant that was nearest to the load, if the transmission lines were also of similar characteristics, would be greater than the amount picked up by the plants more distant.

I think that is in general what you testified to, isn't it?

MR. McALLISTER: Are you quoting from the record, Mr. Paxson?

MR. PAXSON: Well, I am reading more from my recollection of the record. I think I am paraphrasing it. It is maybe not word for word.

BY MR. PAXSON:

Q. I think I stated your testimony fairly, haven't I, Mr. Bennett?

A. That is more or less my recollection of what I testified to at the time.

Q. Now isn't it a fact that when the steady state of the generator has been reached the distribution of the increase in load on the generator depends upon the sensitivity of the governors on the steam turbines rather than upon the impedance characteristics of the connecting lines and generators?

A. I believe this was in response to a question by

the Examiner in which the hypothesis was similar characteristics of the generating stations. The two stations were to be alike, which involved similar characteristics, similar sensitivity, similar adjustments, similar location of the load control device.

Q. That isn't answering my question.

A. I believe you are correct.

Q. My question was assuming all that, isn't it a fact that when the steady state of the generators, after transient conditions have passed, they have what they call a steady state, I believe, according to you engineers, and when that steady state of the generators has been reached, isn't it a fact that the distribution of the increase in load of the generators depends upon the sensitivity of the generators on the steam turbines, I mean on the sensitivity of the governors on the steam turbines, rather than upon the impedance in the connecting lines and generators?

A. The initial distribution of load will be determined by the impedance on the electrical circuits. The slowing down, the instantaneous slowing down of speed will be determined by this draft upon the generators. The action of the governors will be fixed by the amount of slowing down of the turbine generators. And, after that has occurred, there may be a further redistribution of load either by a manual operation, or by action of the governors, in case there are radically different adjustments on the machines.

Q. I don't think you are answering my question quite responsively. I am not trying to get you in any trap. If I have quoted you incorrectly, tell me, and I will let you quote it yourself. All I am asking you is, isn't it a fact when the steady state of the generator—do you know what I mean by steady state of the generators?

A. Perhaps it would be better to define steady state.

Q. You have transient conditions and you have indicated a knowledge of those and in a sense defined it. After

that transient has been passed then you have what you call a steady state of the generators, isn't that technical language that is entirely familiar to you?

A. Are we taking a theoretical problem or a practical interconnected system?

Q. I am of the opinion you are talking about theoretical problems.

MR. McALLISTER: You stated you quoted his testimony. I can't find it. I would like to have the page number.

MR. PAXSON: All right, I will define, or try to, if Mr. Bennett says he doesn't know what I mean by steady state of the generators, that is all I want to know. He is supposed to be an expert, and I think I am using technical language which I have not invented myself.

BY MR. PAXSON:

Q. Do you know what I mean by steady state of generators? That is all I want to know.

A. I haven't—

BY EXAMINER SPENCER:

Q. Do you have a definition that would enable you to answer the question?

A. I have a definition which I consider steady state.

BY MR. PAXSON:

Q. That is an expression which engineers understand?

A. That is correct.

Q. What did you say?

A. That is correct,—

Q. (interposing) That is what I thought.

A. But there is no such thing as a steady state on a practical operating system on which loads are being continually added and withdrawn. Immediately after this

transient condition we have discussed, there would probably be a load change somewhere else which would again affect the governors and the governors are continually busy making adjustments in load changes on the system or back at the initial point and steady state, there just isn't such animal on a practical operating system. That is why I asked you the question were you talking about a theoretical problem or a practical operating problem.

Q. I am talking about the conditions that exist after the transient has passed. You may laugh at me because I am only a layman. We all know about equalization of output.

A. You mean the steam in-put equalizes the electrical out-put?

Q. Yes.

A. Except for losses.

MR. McALLISTER: I would like to know what the question is.

MR. PAXSON: Well, I am getting to a question. We have had some definitions and have had interruptions which I am not objecting to, if it clarifies the issue.

BY MR. PAXSON:

Q. Now I am going to again ask you, call it theory, if you please, that is all right with me, I am not quarreling with that.

I say, isn't it a fact when the steady state of the generators has been reached the distribution of the increases in load on the generators depends upon the sensitivity of the governors on the steam turbines rather than on the impedance characteristics of the connecting lines and generators?

MR. McALLISTER: Is that one question or three questions, Mr. Paxson?

EXAMINER SPENCER: I don't think he has asked but one.

MR. PAXSON: I have put that question four or five times. If Mr. McAllister wants it read perhaps we may ask the reporter to do so.

MR. McALLISTER: There are three questions.

MR. PAXSON: Maybe I am not explicit enough.

BY EXAMINER SPENCER:

Q. Do you understand the question, Mr. Witness?

A. I think I understand it.

Q. Can you answer?

A. I think so.

MR. McALLISTER: It is a question whether you can answer the question as put.

EXAMINER SPENCER: He says he can.

MR. PAXSON: I think he is intelligent enough to answer. I have a little more confidence in him than you have.

THE WITNESS: I am not wishing to delay the game, but may I ask to have the question read again?

MR. PAXSON: Certainly. I am not blaming you.

MR. McALLISTER: That is the trouble.

EXAMINER SPENCER: Mr. Reporter, read the question.

(The reporter thereupon read the pending question as recorded.)

THE WITNESS: Unfortunately the situation is not quite so simple as that. If we are taking a theoretical problem in which we have two power stations

of similar characteristics in operation at different distances from the load, the remaining load, if any, on a system is absolutely constant. Then comes this sudden increase of load. Your question, as I understand it, then, is whether the final distribution of power between the generating stations is determined entirely by the impedances of the circuits.

BY MR. PAXSON:

Q. No, I didn't say that. I said the sensitivity of the governors.

MR. McALLISTER: Let him continue his answer.

THE WITNESS: Whether it is determined by a sensitivity of the governors rather than by impedance of the circuits, I would say it is determined not only by sensitivity of the governors, but by the position of the load control mechanism in the governors at that time and by the loads which the machines themselves are carrying, which in turn, have been determined by the impedances of the circuits, and therefore, all these factors come into play, and not simply sensitivity of governors.

Q. But taking my question again and calling it pure theory, if you will; and assume that we have had this steady state and that the transient has passed, I again ask you, without any of these other factors being injected into it, which seem to me to avoid the question whether or not then the distribution of the increase in load on the generators doesn't depend upon the sensitivity of the governors rather than upon the impedance.

Now you have taught this subject—

MR. McALLISTER: (interposing) How—

MR. PAXSON: (interposing) Just a moment, I am asking the question.

MR. McALLISTER: I know you are, but what is the use of arguing with the witness. Let him answer.

MR. PAXSON: I put it on pure theory.

MR. McALLISTER: What kind of system are you talking about? I insist on that being stated.

MR. PAXSON: Mr. Bennett understands. I have a perfect right to test his knowledge.

MR. McALLISTER: That is true. Let those conditions as to the kind of system be stated in the question.

EXAMINER SPENCER: You mean hydro-electric system?

MR. McALLISTER: As to whether or not they are one generator or 40 or 50, whether this system or some other system, or what are the conditions.

EXAMINER SPENCER: As I understand the question it is purely hypothetical.

MR. McALLISTER: Without sufficient elements being stated. If they state the kind of system I have no objection.

EXAMINER SPENCER: Read the question.

(The reporter thereupon read the pending question as recorded.)

MR. McALLISTER: If that is related to the problem—

MR. PAXSON: I am not asking anything. This is hypothetical.

EXAMINER SPENCER: Answer the question if you can. If you want to say yes or no, you can do it and explain it, or you may give a qualified answer.

THE WITNESS: These other factors can not be eliminated, but the sensitivity of the governor is a factor in determining the distribution of the load.

BY MR. PAXSON:

Q. It is a deciding or controlling factor, that is after the steady state of the generators has been—

A. (interposing) It is one of the controlling—

Q. (interposing). I have asked you whether it isn't the deciding factor. Don't be an unwilling witness.

MR. McALLISTER: He is not unwilling.

EXAMINER SPENCER: Let us have order.

MR. McALLISTER: There is no sense in putting in these remarks on the side. I am trying—

EXAMINER SPENCER: (interposing) Let's get to the merits of the case.

THE WITNESS: I am afraid I have forgotten the question.

EXAMINER SPENCER: He asked if it wasn't the deciding factor.

THE WITNESS: I shall have to answer that as I have answered previously, that it is one of the deciding factors.

BY MR. PAXSON:

Q. One of the deciding factors?

A. One of the deciding factors.

Q. You don't know whether it is the deciding or controlling factor under my hypothesis?

A. The distribution of the load as determined by the transient conditions, being also a factor because there is a difference in governors and unless this difference in load is sufficient to force the transfer, some of the original load will remain, and the answer can not be given entirely

on the basis of the sensitivity of the governors.

Q. Assuming again steady state conditions, is it not a fact, that the relative electrical distance of the plants from the point at which an additional load is supplied is not a deciding factor of the distribution of that additional load on the various generators?

A. If we take into consideration governor characteristics and manual operation by the operators, then the initial impedance is not the deciding factor, as I have already testified, because the load may be transferred to any other place on the system that you wish.

Q. Supposing there isn't any manual operation?

A. What is the question?

Q. Supposing there isn't any manual operation?

A. If there isn't any manual operation then the distribution of the load will be fixed by governor characteristics and the distribution of load which remains when the transient condition has subsided, which is set up during the transient condition.

Q. Now then, Mr. Bennett, I ask you if this is a correct statement.

Transient electric phenomena are such as occur between two permanent conditions. For instance, when a load is suddenly changed, an appreciable time elapses before the generators and the line adapt themselves to the new conditions, and the current and the voltages during the interim time are called transient. Is that a true statement or isn't it?

A. Current, voltage, power flow, machine speeds, and so forth, and various other factors are transient during—

Q. (interposing) I have given you a definition. I am asking you whether it is correct or not. You know more about these things than I do and you can have it read as slowly as you please. I am asking you if it is a true statement.

EXAMINER SPENCER: Do you want it read?

THE WITNESS: Yes.

EXAMINER SPENCER: Read the question, Mr. Reporter.

(The reporter thereupon read the pending question as recorded.)

THE WITNESS: I believe that is correct and essentially complete.

BY MR. PAXSON:

Q. Now, then, referring to the lower graph on respondent's Exhibit No. 8, will you please state what you consider the time elapsing between the two permanent conditions showing on the graph at about 2:24 a. m.?

A. You are referring to the supply of power from Jersey Central to Public Service?

Q. That is right.

A. There doesn't seem to have been any steady state condition in there, because there was a fairly heavy load, gradually decreasing prior to 2:24, then an abrupt drop, then a rise of load a little bit, then a very abrupt rise, then a very abrupt drop, then, if I read the chart accurately, a very rapid rise, then a succession of small variations. There doesn't seem to have been any steady state in there.

Q. Now, Mr. Bennett, what determines the amount of electrical energy being delivered by a steam turbo generator?

A. That is connected to an interconnected transmission or that is connected directly to the load, which condition do you refer to?

Q. Any one.

A. The amount of steam admitted to the turbine.

Q. Now, Mr. Bennett, is this a true statement, the load division between two engines or turbo driven alternators in parallel is dependent solely upon the governors of their prime movers?

A. Are you referring to the steady state before the transient condition?

Q. Steady state.

A. Under steady state condition, why, two machines operating in parallel on a load, the distribution of load between the machines will be determined by the amount of steam admitted to each.

Q. Now then, Mr. Bennett, on page 1018 of the record, the Commission's counsel, at the bottom of the page, the last question, in putting that question inadvertently I believe misquoted Mr. Sibley's testimony, as shown on page 692 of the record, where he states that Mr. Sibley testified, in explaining Chart No. 8, that emergency energy required by Staten Island Edison Corporation resulted in excess generation. Mr. Sibley testified, as shown on page 692, in explaining this Chart No. 8, that emergency energy required by Staten Island Edison Corporation resulted in increased generation, not excess generation on the system of Public Service Electric and Gas Company.

Now if you will take that question and substitute increase for excess, would your answer be the same as you gave on page 1019 of the record?

MR. McALLISTER: I have changed that word excess to increased. I think I either misquoted myself or else there was an error in transcription.

THE WITNESS: A change of wording between excess and increased, I would not change my answer.

BY MR. PAXSON:

Q. All right. Now is the amount of energy flowing from Jersey Central Power and Light Company to Public Service Electric and Gas Company over the period of time covered by the emergency draft by Staten Island Edison Corporation increased by the amount indicated as increased flow from Public Service Electric and Gas Company to Staten Island Edison Corporation?

A. I am sorry. May I have the question reread?

EXAMINER SPENCER: Read the question, Mr. Reporter.

(The reporter thereupon read the pending question as recorded.)

THE WITNESS: I believe I have already testified in regard to that the initial suppiy from Jersey Central at the time there was increased draft of power from Staten Island— will you strike that, and let me begin over?

At the time of the increased demand from Staten Island there was an apparent increase in supply from Jersey Central to Public Service Electric and Gas Company, but for some reason, either operation by governors, load changes, or operators' manipulations, this immediate excess disappeared, and the power in later times was not in excess of that supplied prior to the draft from Staten Island Edison Corporation.

BY MR. PAXSON:

Q. In other words, let's see if I interpret you correctly. Does not the chart show that just previous to the draft of emergency power by Staten Island Edison Corporation, the power being furnished by Jersey Central to Public Service was being used by Public Service to meet its own requirements?

A. No, the graph only shows that there was a flow of power from Jersey Central to Public Service, but there is nothing in the graph to show where it was being used.

Q. I thought you testified the other day under certain assumptions that if the power supplied by Jersey Central to the Public Service was in excess of that supplied Staten Island Edison Corporation by Public Service the balance would go on the general system of the Public Service?

A. You asked me in this case what the graph showed and I answered what the graph showed. You did not put

in any hypothesis of other things. I answered only on the basis of what the graph shows.

Q. Well, if the graph does not show that the power being furnished by Jersey Central to Public Service was being used by Public Service to meet its own requirements, what was it used for?

A. Are you speaking of the period prior to 2:24 a. m. or after 2:24 a. m.?

Q. Prior.

A. At various intervals some of the power was going to or coming from Staten Island and the graph does not show whether power was being supplied, whether this power was flowing from Public Service to some of the interconnected companies, whether it was being used by Public Service or what became of it. The graph only shows the amount of power flowing on these two circuits.

Q. Well, let's see if I can get somewhere another way.

Assuming for the moment that Jersey Central Power was used by Public Service to meet Staten Island Edison Corporation's emergency requirements, would it not be true that Public Service would have to produce from its own facilities additional power to replace that which it had been obtaining from Jersey Central to meet its own load requirements, assuming it had load requirements?

A. If Public Service is receiving a certain quantity of energy from Jersey Central, and an additional draft is made on it from Staten Island Edison Corporation, and if the amount from Jersey Central remains the same, obviously additional power must be obtained from some source, either the Public Service plant or from some of its interconnections.

Q. What type and size of turbines does Jersey Central have in its South Amboy Station?

A. I don't recall that I testified as to the type of turbines in South Amboy. I did testify as to the capacity.

Q. You don't know their type or size?

A. I am not interested in the type.

EXAMINER SPENCER: Do you know?

BY MR. PAXSON:

Q. I am not asking if you are interested.

A. Yes, the steam turbines—

Q. (interposing) I asked you what the type and size was.

A. 50,000, two 25,000 turbo generating units, using steam.

Q. How do you know that?

A. From sworn testimony in the reports.

Q. What you have heard?

A. Which was submitted to the Federal Power Commission.

Q. What is that?

A. Which was submitted to the Federal Power Commission, and also sworn testimony in this case.

Q. Now is the governor sensitivity more or less important on an interconnected system or in a case of an isolated unit?

A. That is very much like the old debated question whether Lincoln or Napoleon was the greatest man. The sensitivity requirements are distinctly different in the two cases, but they are very important in both cases.

Q. On an interconnected system, could not any turbine be operated as a synchronized unit of that system, even if its governor did not exist by opening the throttle—

A. (interposing) If the operating company were willing to take the chance of the instability and the troubles that would result, it could.

Q. Do you know anything about the relative sensitivity of the governors at South Amboy and various other—

A. (interposing) There was nothing in my testimony that necessitated any such knowledge.

Q. That isn't answering the question. Be responsive.

A. I have not investigated the relative sensitivity of governors on various generating stations on Jersey Central, Public Service, and Staten Island, and the various systems with which these systems are connected.

Q. Disregarding all theoretical or minute or instantaneous considerations, will not the division of any change in load primarily depend in the change and amount or quality of steam admitted to all the various interconnected turbines?

A. Will you read the question again, please?

(The reporter thereupon read the question as recorded.)

THE WITNESS: In answer to a question of that sort, theoretically consideration can not be disregarded of—

BY MR. PAXSON:

Q. I am asking you to disregard that and then answer the question.

A. I am answering the question that it can't be disregarded.

Q. What was that?

A. I am answering the question that they can't be disregarded.

Q. Can't you answer from a practical, operating standpoint and not as a professor?

A. I am answering on this testimony entirely as an expert experienced in the operation of interconnected electric systems and not as a professor of electrical engineering.

Q. Is my statement from a practical, operating, engineering standpoint correct?

A. Did you make a statement?

Q. Yes, I said disregarding all theoretical and minute or instantaneous factors, you said there was five sec-

onds, disregarding the five seconds, will not the division of any change in load primarily depend on the change in amount and quality of steam admitted to all the various interconnected turbines?

A. If we are going to disregard all transient and minute conditions, and so forth, which may come into the question, then your inquiry is whether or not the load distribution between stations can be determined by the operator adjusting the amount of steam at that time admitted to the various turbines? The answer is yes, if that is the meaning of your question.

Q. I didn't say a word about the operator. I said disregarding all theoretical, and minute, or instantaneous factors, the five seconds, will not the division of any change in load primarily, I use the word primarily, talking as a practical operating man, will depend on the change in amount and quality of steam admitted to the various interconnected turbines?

MR. McALLISTER: Mr. Examiner, I submit the witness has answered the question.

MR. PAXSON: I submit he hasn't.

MR. McALLISTER: He has answered.

MR. PAXSON: He has avoided the question.

MR. McALLISTER: He has not avoided it.

EXAMINER SPENCER: I will let him answer it again, or answer it if he has not.

THE WITNESS: The ultimate distribution of load between power plants on an interconnected system after the transient conditions have passed is determined by the admission of steam to the turbines. However, that admission being governed by governor action or manual operation of the operators.

EXAMINER SPENCER: Does that answer the question, Mr. Paxson?

MR. PAXSON: I think so, after a long struggle.

EXAMINER SPENCER: Proceed.

BY MR. PAXSON:

Q. Now is it not a fact that it is the governor on each turbine and not any internal or external impedance that actually controls the load on that turbine?

A. The governor is the factor which controls the output of energy from a turbo generator set in the permanent condition, in steady state condition, but only then.

Q. What do you know about the effect of the steam receiver capacity of all or any of the turbo generators connected to this Mechanic Street Substation?

THE WITNESS: Will you read that?

EXAMINER SPENCER: Will you ask the question over, Mr. Paxson?

BY MR. PAXSON:

Q. What do you know, if anything, that is an addition, I didn't put that in, about the steam receiver capacity of all or any of the turbo generators connected to Mechanic Street Substation?

A. What do you mean in this case by steam receiver capacity?

Q. Don't you know what steam receiver capacity is?

A. I am asking you what you mean by it.

Q. I am asking you first if you don't know as an expert the meaning of those technical terms. If you do not, I will try to explain it.

A. I have no way of knowing what you mean by steam receiver capacity in this case because it may mean any one of several things.

Q. What several things?

A. When the steam leaves the turbine it is received in a condenser. I don't think that is what you mean, but it might be.

Q. You said several things, what are the others?

MR. McALLISTER: Mr. Examiner, I think when the question is in a well known term it ought to be included—

EXAMINER SPENCER: He said several things. The witness may answer.

THE WITNESS: I have not investigated steam conditions in any of the stations concerned because they did not have anything to do with any of the testimony which I gave.

BY MR. PAXSON:

Q. All right. Does not this receiver capacity have a large influence on the load carried by any turbine during the brief period before the governor action of any turbine can be made effective?

A. He is asking me to answer a question on a term which I don't understand.

EXAMINER SPENCER: I understand his question is a general question.

MR. PAXSON: It is a general question.

BY EXAMINER SPENCER:

Q. He refers to steam receiver capacity in any system. Does it have any effect before the other operations begin?

A. I have not testified in regard to mechanical conditions in these plants and don't propose to.

EXAMINER SPENCER: He has not asked you about these plants.

BY MR. PAXSON:

Q. I am not asking you to propose to do anything. I have given you a hypothetical question. You have already said you didn't know anything about the steam receiver

capacity of the turbo generators I have referred to and I am not disputing it.

I am asking you as an expert having large experience, as you say, with different systems, I am asking you does difference in this receiver capacity have a large influence on the load carried by any turbines during or before the brief period before the governor action of any turbine can be made effective?

A. I have not attempted to testify as a mechanical engineer and don't propose to.

Q. You mean you are not a mechanical engineer?

A. That is correct, and this theory is mechanical engineering, a question that has nothing to do with the testimony that I gave.

Q. That is for the Commission to decide. You testified on governors.

A. I testified as to certain features.

Q. Over my objection, I admit.

MR. McALLISTER: Let the witness complete his answer.

THE WITNESS: I testified as to certain requirements that were placed on the governors of turbines that had to operate on an interconnected system and I made it very clear at that time I didn't care how those results were obtained. I collected all the information that was pertinent to the testimony I gave.

BY MR. PAXSON:

Q. Let's not get angry about it.

A. I am not angry.

EXAMINER SPENCER: Proceed.

BY MR. PAXSON:

Q. I am just trying ot get some facts and I am not

trying to ball you up. I think my attitude has been correct.

A. If my voice implies I was pounding the table, I am not pounding the table and I apologize.

EXAMINER SPENCER: Apology accepted. You may proceed.

BY MR. PAXSON:

Q. The load carried by the generator has been testified to. Don't you think the receiver item is an important item to be considered?

A. Not in the testimony I gave.

Q. I am asking you as an expert.

A. I have already stated I was not testifying as an expert mechanical engineer.

Q. All right, let us ask another question. Is it not a fact in a 1,200 pound high pressure system that when the steam returns from the high pressure unit to the reheaters and goes to the low pressure unit, the receiver capacity is many times as great as in a simple, single barrel machine?

A. That is again a mechanical engineering question to which I do not testify in the direct examination and do not propose to testify to in the cross-examination.

Q. All right. Now, Mr. Bennett, is it not a fact that when a sudden increase in the system load occurs the frequency necessarily is slightly reduced, and this additional load is instantaneously furnished by the spinning momentum of every piece of revolving apparatus connected to the system?

A. That is correct.

Q. Is it not also correct the next thing that occurs is that one or more of the governors of the various machines are activated by this slight drop in frequency?

A. I have already testified so and I still think so.

Q. Is it not also correct that which governs and on

which machines are so affected by the minute drop in frequency is entirely dependent on the relative sensitivity of that individual machine and this relative sensitivity bears no relation whatsoever to the impedance or to the geographic or electrical distance of the turbine from the point at which the change of load occurs?

A. That question is rather long and involved. May I ask it be read?

EXAMINER SPENCER: Read the question.

(Thereupon the reporter read the pending question as recorded.)

THE WITNESS: That seems to be two or three questions. I will have to answer one at a time.

The instantaneous drop in speed in response to a suddenly applied load, as I have already testified, is determined by the inertia of the machines and the impedance of the machines, their size, the impedance of connecting circuits and possible other factors.

The load which is supplied under these conditions determines the drop in speed. This drop in speed, in turn, activates the governors and the amount of governor response on a particular machine depends upon the sensitivity of that particular governor.

Q. And not on the impedance or geographic or electrical distance of the turbine from the point at which the change of load occurs?

A. You are asking whether or not—

Q. (interposing) I am asking, I say it depends upon the relative sensitivity, and I am asking you if this relative sensitivity does not bear any relation whatsoever to the impedance or geographic or electrical distance of the turbine from the point at which the load occurs?

A. Governor characteristic does not depend upon the electrical circuits.

Q. Or the geographic distance?

A. Or the geographic distance. That is a matter of design in the governor.

Q. Now, Mr. Bennett, is it not true that stored momentum of every revolving piece of apparatus on a system is instantly available to carry instantaneous transient load?

A. It is available to assist in carrying instantaneous loads, whether transient or permanent.

Q. No fuel is used in the release of this stored energy and its conversion into electrical energy?

A. Addition fuel is used only after the governor has responded to the changes of speed produced by this instantaneous draft of energy.

Q. Can't you answer my question exactly?

A. I have answered it.

Q. I asked you if any fuel was used in releasing this stored energy and its conversion into electrical energy.

A. Fuel is not used in the release of energy, but fuel is used in replacement of energy so released.

Q. I think you can answer my question yes or no, and then qualify.

A. The question can not be answered yes or no.

Q. You can't answer that question yes or no?

A. The nature of the question is not such as to permit an answer of yes or no.

Q. Even when you qualify it you can't answer it?

A. That is correct.

Q. I am asking you a theoretical, scientific question, and I am going to repeat it.

You stated the stored momentum of every revolving piece of apparatus is instantly available to carry instantaneous transient load, didn't you?

A. The record will show.

Q. Well, that is not a very nice way to respond, but I guess you are right.

BY EXAMINER SPENCER:

Q. Do you know?

BY MR. PAXSON:

Q. I will ask you, isn't it true that no fuel is used in the release of this stored energy and its conversion into electrical energy?

You can certainly answer that yes or no and qualify if you want to.

A. I stated no fuel was used in the release of the energy, but that fuel had to be used to replace the energy so released.

Q. That is all right as to part, and that is true as to the conversion also, isn't it?

A. I don't know what you mean by that question.

MR. PAXSON: Let the reporter read it.

(The reporter thereupon read the pending question as recorded.)

BY MR. PAXSON:

Q. Not only its release, but its conversion into electrical energy.

A. No fuel was used?

Q. Yes.

A. In the conversion of the stored energy?

Q. Yes, in the conversion of the stored energy which is released.

A. An obligation is created to use fuel by the release of the stored energy.

Q. Some time in the future?

A. In the near future.

Q. So action of the governor is unnecessary to accomplish such release or conversion, isn't it?

A. This action takes place before the governor has time to respond.

Q. Now I will give you another hypothetical ques-

tion. If at the time a load goes off a certain substation and an identically equal load comes on, there would be no change in speed, would there?

A. If the load goes off from a comparable substation?

Q. And an identically equal load comes on at the same substation at the same instant?

A. And an identical load comes on at the same substation at the same instant?

Q. That is right.

A. There is no change on the system as a whole.

Q. You have no personal knowledge of Mechanic Street Substation or South Amboy Substation or any of the substations of Public Service Electric and Gas Company or Staten Island Edison Company either, have you?

A. I have all of the knowledge that I needed for everything that I testified to on direct testimony.

Q. I said personal knowledge, by your own personal inspection or observation.

A. Do you mean whether I have been to the substations or seen them?

Q. I think the question speaks for itself.

EXAMINER SPENCER: Answer the question if you can.

MR. McALLISTER: Mr. Examiner, personal knowledge can be acquired in different ways.

MR. PAXSON: I am not arguing this question with you.

MR. McALLISTER: No, but I am stating on the record, and if you want to ask him if he has been there, that is one thing. If he has personal knowledge based on the information supplied to the Federal Power Commission by these various companies, that is another thing. He may have intimate knowledge of the substations.

MR. PAXSON: All of which is all a matter of argument.

EXAMINER SPENCER: Can you answer the question, Mr. Bennett?

THE WITNESS: I am not quite sure what respondent's counsel means by personal knowledge. If he means to inquire whether or not I have been to the substations, the answer is no. If he means to inquire whether or not I know the characteristics of the substations from reports and sworn testimony furnished this Commission, the answer is yes.

MR. PAXSON: I am satisfied with the answer. No further questions.

EXAMINER SPENCER: I think at this time we can recess for lunch.

MR. McALLISTER: There are a couple of matters there I wish to inquire of the witness, Mr. Bennett, and it will extend the redirect for some time.

EXAMINER SPENCER: Well, we will recess then until 1:30.

(Whereupon, at 12:30 o'clock p. m., a recess was taken until 1:30 o'clock p. m. this day.)

Afternoon Session

(Met, pursuant to the recess, at 1:30 o'clock p. m.)

EXAMINER SPENCER: Gentlemen, the hearing will now be resumed.

Before resuming the redirect examination, Mr. Paxson wasn't there a matter left open about furnishing papers?

MR. PAXSON: Yes, Mr. Examiner. They were supposed to be furnished today. But, of course, no

one anticipated that the hearing would last this long. Suppose we be allowed a reasonable time.

EXAMINER SPENCER: What time do you think should be allowed?

MR. PAXSON: If Mr. McAllister will tell me how long the case will continue, I might make a suggestion.

EXAMINER SPENCER: Will the 24th be sufficient time?

MR. McALLISTER: May we wait until we get through?

EXAMINER SPENCER: I wanted to do it now while we have the matter in mind.

MR. PAXSON: I think the 24th will be all right. I don't think I will have to ask for any further extension. But I am assuming that the case will close today.

EXAMINER SPENCER: If we do not adjourn today we will fix the time later.

CLAUDIUS E. BENNETT

resumed the witness stand and, having been previously sworn, testified on behalf of the Commission as follows:

Redirect Examination

BY MR. McALLISTER:

Q. Mr. Bennett, with respect to the stored energy in a revolving generator, was that condition accomplished without the utilization or expenditure of fuel?

A. No. It took fuel to make the steam and bring the rotor up to that speed, and when the rotor is slowed down by drawing this stored energy it necessarily is using fuel

energy, that has been spent sometime previously and creating an obligation to restore something.

Q. To restore that requires again the expenditure of steam which is produced by the consumption or the burning of fuel?

A. That is correct.

MR. McALLISTER: That is all I have.

BY MR. PAXSON:

Q. But no additional fuel was burned at the instant this energy was released, I believe you said?

A. At the instant it is released there is no additional burning of fuel. The fuel is burned when the energy is restored or when it was originally put in there.

MR. PAXSON: That is all.

MR. McALLISTER: That is all.

EXAMINER SPENCER: You may be excused. Mr. Bennett.

(Witness excused).

EXAMINER SPENCER: You may call your next witness, Mr. McAllister.

MR. McALLISTER: I will call Mr. Woll.

LAZAR B. WOLL

was called as a witness for and on behalf of the Commission and, having been first duly sworn, testified as follows:

Direct Examination

BY MR. McALLISTER:

Q. Will you please state your full name?

A. Lazar B. Woll.

Q. And your address?

A. 5007 Third Street, N. W., Washington, D. C.

Q. Are you a graduate electrical engineer?

A. Yes, sir.

Q. Will you please describe briefly your education and experience?

A. I graduated from Columbia University School of Engineering with the degree of Bachelor of Science in Electrical Engineering and Electrical Engineer.

Q. What was your education and training prior to that, Mr. Woll?

A. I went through high school and the elementary school and college.

BY MR. PAXSON:

Q. I did not hear your answer.

A. I said I took a regular pre-college course in the school of engineering.

Q. Will you state where?

A. Partly on the other side and partly in this country.

BY MR. McALLISTER:

Q. State where it was, please?

A. It was in Russia.

Q. Was that in your primary education?

A. Yes; primary and part of my secondary education.

Q. What colleges did you attend in your college work?

A. The College of the City of New York and Columbia University.

Q. How many years of college work did you take at the College of the City of New York?

A. About two years.

Q. About two years?

A. Yes.

Q. Then you began your study of engineering at Columbia University?

A. Yes.

Q. And I think you graduated?

A. Yes.

Q. With the degree of Bachelor of Science in Electrical Engineering and Electrical Engineer?

A. Yes.

Q. What year was that?

A. 1929 and 1930.

Q. You got which degree at which time?

A. The Bachelor of Science in Electrical Engineering in 1929 and Electrical Engineer in 1930.

Q. Electrical Engineer in 1930?

A. Yes.

Q. Does that embody graduate work?

A. Oh yes; that is graduate work.

Q. What has been your experience since 1930?

A. I worked for a short period of time with the Third Avenue Railway System in New York in a substation. I then worked for about six months at the end of 1930 and part of 1931 with the Electro Dynamic Company, Bayonne, New Jersey.

Q. In connection with what?

A. Construction and design of electric motors and generators.

Q. Then what?

A. I then worked for about a year, in 1931 and part of 1932, for the Artificial Ice Company in Kansas City, Missouri as operating engineer in charge of ice production. They had a small substation and various electrical equipment for the operation of the plant.

After that I worked for about a year or approximately a year with Walter M. Palakov, Industrial Engineer, on problems of management and production. Since 1933 I have been employed by the Federal Power Commission.

Q. What is the nature of your work with the Federal Power Commission?

A. That work varied. Originally I was engaged on the National Power Survey, and in that work my assignments were on problems of power marketing, forecasting and utility statistics in general.

Subsequent to that work, which was completed about the middle of 1935, I worked on a study of the Booneville project, similar to the one Mr. Bennett described previously. My work primarily was in connection with economics, power of generation, transmission and distribution. All of my work, in fact, was primarily with economics of electric power.

Since about a year ago I was assigned to work under Mr. Grimsley, who testified in this case, in making studies of the flow of electric energy over transmission lines for the purpose of determining whether or not the energy originating on the facilities of any particular distance can be traced as flowing in interstate commerce over the facilities of this system or over the facilities of some intermediate companies. In this connection I have made a series of studies, including this one with which we are now dealing.

Q. Mr. Woll, have you prepared a diagram showing the flow of energy between the Jersey Central Power and Light Company and the Public Service Electric and Gas Company, and between Public Service Electric and Gas Company and other systems operating in New Jersey, New York and Pennsylvania?

A. Yes; I have.

Q. Mr. Woll I show you a chart which is entitled "electric energy transactions between utility systems affecting the operation of Jersey Central, 1934 to 1937", and I will ask you if that is the chart which you prepared and to which you have just referred?

A. That is right.

MR. McALLISTER: Mr. Examiner, at this time I ask that the chart identified by the witness be identified as Commission Counsel's Exhibit No. 22, and I ask that it be received in evidence as that exhibit.

MR. PAXSON: May we have just a moment to look it over?

EXAMINER SPENCER: Yes, Mr. Paxson.

MR. PAXSON: If the Commission please, I object to the offer of this chart in evidence. It is entitled "Electric energy transactions between the utility systems affecting the operations of the Jersey Central Power and Light Company for the years 1934 to 1937".

Now, I think the operations of the Jersey Central Power and Light Company involves a conclusion. And certainly this witness has not testified as yet to any conclusions, and I don't know that he is qualified to.

Below the line is the statement of interchange of electric energy between companies affecting interstate transfers in 1936. That also is a conclusion. It may be a conclusion of fact. It also involves a conclusion of law, for which this witness is not qualified; and it begs the entire question which this Commission has to decide. I might add, of course, that this chart is on a pretty small scale and it is rather difficult to read it without a magnifying glass. After all, perhaps that is not as important an objection as the others.

I might add that it is common knowledge, I suppose, and Commissions take judicial notice of the ordinary direction of state lines. It does not look to me as though this has any geographical locations as to the

different states. It does not indicate any proper location of plants with respect to state lines. And I certainly object to those captions. And it cannot be received in evidence at this time under any rule of law that I know of.

EXAMINER SPENCER: What have you to say, Mr. McAllister?

MR. McALLISTER: It is a captious objection, Mr. Examiner, for the simple reason that the use of a term by the witness may have an entirely different meaning than that which is given to it by Mr. Paxson. It is not a conclusion, as I view it. And certainly Mr. Paxson has every opportunity to inquire of the witness as to what is meant by the term on cross examination. The same word used in the second part of the chart is a word that can also be defined by the witness.

In other words, the witness has set forth on here certain facts based upon records and testimony in this case and intimation supplied by these companies under oath, and he has merely related that information in this graphic style so that it can be understood and seen

The witness will explain fully the information that is on there and the inter-relation between the movement of energy from one company to another.

To my mind it contains a very vivid picture of what is taking place on a large interconnected system. There has been a great deal of testimony in this record relating to the manner in which energy in part of the system may affect the operations in another. Witnesses for respondent particularly have dealt with that problem. And I think it is important that the facts, all of the facts, with respect to the transaction

between these companies be assembled in some form so they can be readily understood and appreciated by those who are to pass judgment upon the relationship which these various companies bear to one another and the effect that these interstate operations have upon the various companies, including the Jersey Central Power and Light Company, as well as the showing of a direct transfer of energy generated in one state to another state for sale at wholesale.

As I stated at the outset of my remarks, the objection that has been made is wholly without force and can readily be limited by the statement of the witness as to just exactly what he means by the use of the term.

EXAMINER SPENCER: I was going to ask the witness this question. This chart purports to show the locations of certain power company plants and the connections and the amount of energy moving from one to the other?

MR. McALLISTER: Not plants, Mr. Examiner.

EXAMINER SPENCER: What are they?

MR. McALLISTER: Just what they are labeled.

EXAMINER SPENCER: "Staten Island Edison Corporation."

MR. McALLISTER: Exactly. It is systems.

EXAMINER SPENCER: I thought this line would come from a power plant. But it doesn't make any difference. It is the property of these various companies. I want to know if the map itself shows that?

MR. PAXSON: Well, Mr. Examiner—

EXAMINER SPENCER: I will not question the

witness on that. I do not want anything put into the record that might overcome your objection in that way.

Will the witness state what the chart does show?

MR. PAXSON: Since Mr. McAllister has made an offer and made some statements that I did not understand at the time, I think I am justified in making some further objections to the offer of this chart.

In the first place, I might say that this offer of the chart is, under no stretch of the imagination, proper rebuttal testimony in any way. If Mr. McAllister wanted to offer this chart it should have been in his direct case. This is not in rebuttal of anything our witnesses have said and I don't think it is proper to offer it at this time.

Aside from that, Mr. McAllister stated very distinctly, and I wrote it down, that this chart is based upon the records and the testimony in this case.

Now, if it is based upon the records, I already have my objection to those records as hearsay. If it is based upon testimony, it is an admitted rule of law beyond peradventure of contradiction that no man can come forward as an expert witness and offer testimony based upon evidence in this case, based upon his recollection or based upon it. That matter of what is based upon testimony is for the determination of this Commission.

This graph, with that statement by Mr. McAllister, is clearly inadmissible under any rule of law I know of.

I might also add it has figures for the year 1934, and I object to anything relating to any transaction prior to August 26, 1935.

MR. McALLISTER: Based upon my statement that it was based upon facts of record or based upon testimony in this case may be entirely eliminated.

MR. PAXSON: You have already told us.

EXAMINER SPENCER: Just state the facts as to how it was prepared and what it purports to show.

MR. PAXSON: It should not be eliminated. He made that statement on this record and I want it to stand.

MR. McALLISTER: We can't change the facts, regardless of what Mr. Paxson says. I know, as a matter of fact, that it was not based—

EXAMINER SPENCER: You may proceed.

MR. McALLISTER: I know, as a matter of fact, that this chart was prepared before there was any testimony in this case, and the only thing I had in mind was that the facts that are stated on here are supported by the testimony in the case.

MR. PAXSON: You are not testifying, Mr. McAllister?

MR. McALLISTER: No; I am not; but I am making a statement so there can be no question about it.

EXAMINER SPENCER: You may proceed.

BY MR. McALLISTER:

Q. Mr. Woll, will you be good enough by reference to the chart which has been offered in this case and identified as Commission Counsel's Exhibit No. 22, to explain just what it shows and what facts are related thereon?

A. This chart was drawn up to show the interchange of energy between a number of systems, including the Jer-

sey Central Power and Light Company, and does not indicate geographical locations of properties or of power plants or of transmission lines, but merely the fact that the particular systems are in one state or in another.

The term "affecting", as used in this chart indicates that the transactions between the Jersey Central Power and Light Company, the company under discussion, with other systems has a direct relation to the interchanges which these other systems carry out with systems in the same state and adjoining states.

MR. PAXSON: I move that that answer be stricken out. It contains a conclusion and begs the whole question at issue before this body.

MR. McALLISTER: Mr. Examiner, I insist that the witness be permitted to complete his explanation before counsel for the Respondent interposes his objections and attempts to break the line of discussion and explanation by the witness.

MR. PAXSON: I have a right to address this Commission and ask that certain statements be stricken out. I have not addressed myself to you, Mr. McAllister.

EXAMINER SPENCER: Mr. Paxson, will you make a note of that and after the witness gets through explaining it renew your objection?

MR. PAXSON: I thought he was through.

THE WITNESS: Not yet.

BY MR. McALLISTER:

Q. Will you please proceed?

A. The main thing that stands out on this chart is the fact that the companies operating in New Jersey—

MR. PAXSON: I have to object. I cannot let

him get in a lot of conclusions. "The main thing that stands out"—another conclusion.

I think you did direct this witness to state facts and not conclusions, Mr. Examiner.

EXAMINER SPENCER: Yes; you must confine yourself to statements of fact.

THE WITNESS: This chart shows the Jersey Central Power and Light Company has delivered to the Public Service Electric and Gas Company in 1936 70,684 kilowatt hours, and in the same year received from the Public Service Electric and Gas Company 1,240,540 kilowatt hours.

BY MR. McALLISTER:

Q. By reference to your chart please indicate just where that is shown?

A. That is shown by transactions indicated as "G. and H".

It also shows the Public Service Electric and Gas Company received in the same year from the Philadelphia Electric Company 169,648,000 kilowatt hours and delivered to the Philadelphia Electric Company 10,611,000 kilowatt hours.

MR. PAXSON: If the Commission please, I move that statement be stricken out. There is no basis for the statment that I know of. The Philadelphia Electric Company has not appeared here. We are not bound by any reports that the Philadelphia Electric Company makes, and I do not think there is any proof of the authenticity of the figures.

MR. McALLISTER: Will you permit the witness to complete his explanation and then let counsel for the Respondent determine what he does think the figures are as used?

EXAMINER SPENCER: The witness will have to establish the basis and show the source of information.

THE WITNESS: All of the figures I have quoted so far and all of the others shown on this chart are all given in exhibits Nos. 2, 3 and 4, which have already been introduced in evidence. Commission Counsel Exhibits Nos. 2, 3 and 4, contain all of these figures.

MR. PAXSON: Is this just a pictorial representation—

MR. McALLISTER: Just a minute, please. When you get into cross examination you can find out what it is.

MR. PAXSON: I may not make so many motions to strike if I can get the facts. I am trying to expedite it.

EXAMINER SPENCER: Go ahead.

BY MR. PAXSON:

Q. Do I understand all of the figures shown on this chart—This is just a pictorial representation in your mind of figures already contained in exhibits which have been introduced?

A. That is right.

MR. PAXSON: I think that clarifies the air a bit.

BY MR. McALLISTER:

Q. Will you proceed, please?

A. It also shows the Public Service Electric and Gas Company in this same year delivered 54,357,000 kilowatt hours to the Pennsylvania Power and Light Company and received in the same year from the Pennsylvania Power and Light Company 41,966,000 kilowatt hours.

The chart also shows the New Jersey Central Power and Light Company delivered to the Metropolitan Edison Company, operating in Pennsylvania, 214,520,945 kilowatt hours and received from the Metropolitan Edison Company 37,077,262 kilowatt hours.

It also shows the Public Service Electric and Gas Company in the same year delivered 3,296,666 to the Staten Island Edison Corporation and received from the Staten Island Edison Corporation 3,111,400 kilowatt hours.

Public Service Electric and Gas Company interchanged power with the New Jersey Power and Light Company and delivered to this latter company 22,405,000 kilowatt hours and received 20,911,000 kilowatt hours.

The New Jersey Power and Light Company in 1936 delivered 2,649,950 kilowatt hours to the Central Hudson Gas and Electric Company, operating in New York, and received from the Central Hudson Gas and Electric Company 7,513,732 kilowatt hours.

It shows the Jersey Central Power and Light Company delivered to the New Jersey Power and Light Company 108,000 kilowatt hours and received an amount which was difficult to show on this chart because of it smallness.

Q. What is that amount, Mr. Woll?

A. I would have to look at the exhibit. I cannot read it from this chart. It was so small it could not be shown on this chart. That is why it is shown here in the form of a dashed line.

Q. Will you state what that is and determine that from the exhibit on which it appeared?

A. It would appear on Exhibit No. 2.

Q. Do you have Exhibit No. 2 there before you?

A. Yes, sir.

Q. Will you state what the figure is?

A. It is shown on Exhibit No. 2 under the year 1936 as 108,600 kilowatt hours was a negative sign indicating

energy lost in energizing interconnecting line, which would really indicate a delivery rather than a receipt.

BY MR. PAXSON:

Q. A what?

A. A delivery of energy rather than a receipt?

BY MR. McALLISTER:

Q. Will you please proceed?

A. The lower part of this chart shows all of these interchanges which I have identified so far for four years and the black bars correspond to those bars which I have quoted. For the other years they are shown in the white bars or, rather, in the light bars, and they differ in quantity for the various interchange transactions that are shown on the chart.

There is a scale on the right and on the left showing these transactions in millions of kilowatt hours.

Q. The blocks on the bottom in black are those reproduced above this line on this chart?

A. Yes; to scale.

Q. The lines which are used indicating divisions between states at the top, New York on one side and New Jersey on the other and down below New Jersey and Pennsylvania?

A. Yes, sir.

Q. What do they represent as shown on this graphic reproduction? In other words, do they merely divide the systems as they operate in the various states in which they are a part without other reference whatever as to the relative locations of the various plants in any state?

A. That is correct. It is merely an indication of the state in which the particular companies operate and not geographical locations of the company in the state.

Q. And the flow of energy between those systems, one being located in one state and the other in another, whatever the transactions between the companies actual-

ly might be, represent the flow of energy between the companies as you have shown it?

A. That is right.

Q. And that information, as you stated previously, is shown on various exhibits which have been received in evidence in this case?

A. That is right.

MR. McALLISTER: You may cross examine.

Cross Examination

BY MR. PAXSON:

Q. Mr. Woll, this line which reads "interchange of electric energy between companies", and so on, is that only for the one year, 1936?

Let me explain myself. Does that mean that these figures as indicated on this map cover only one year, or is it four years?

A. Just the year of 1936.

Q. Then all of those figures on these various lines in the state of New Jersey are just for the one year?

A. The title applies to the chart as a whole. The upper chart is explained in the subtitle underneath, "interchange of electric energy between companies affecting interstate transfers in 1936." And on the lower chart there is a statement "inter-company electric energy transfers".

Q. What I am trying to do is reconcile the statement in one place about 1936 and the statement in other places about 1934 to 1937, just to ascertain what the chart purports to show. And in making the statement kindly leave out the words "affecting interstate transfer", which is a conclusion.

THE WITNESS: Now, what is the question?

(The following was then read by the Reporter:)

"Q. Then all of those figures on these various lines in the State of New Jersey are just for the one year?"

THE WITNESS: Yes; they are for 1936.

BY MR. PAXSON:

Q. On the bottom subdivision of this chart which has these blocks in black, which reads: "inter-company electric transfers, 1934 to 1937", do I understand that those portions inked in solidly in black represent the net transfer or the aggregate both ways? I am just trying to see what the basis of your comparison is. I don't know. I can't read these letters at all. Perhaps my eye-sight is defective.

A. It shows the total flow in each direction, and there is a note on the lower part of the chart stating "black bars represent 1936 values snown on above diagram".

MR. PAXSON: I will have to ask that that answer be read, as I did not understand it.

(The last answer of the witness was then read by the Reporter.)

BY MR. PAXSON:

Q. I guess I will have to start all over again. As the answer was read it was in each direction. The bars are just solid bars. You have a bar D, and that goes up a certain height on the chart. Is that bar the sum of the flow in both directions?

A. No, sir.

Q. Or is it the net?

A. No, sir. If I might explain, the transfers of energy between the Public Service Electric and Gas Company and the Philadelphia Electric Company are identified as C and D, the "C" for the flow from the Public Service

Electric and Gas Company to the Philadelphia Electric and the "D" being for the flow from the Philadelphia Electric to the Public Service Electric and Gas Company.

Q. Then, you have separated them?

A. They are separated, and they are shown in a similar way on the lower part of the chart.

Q. I wasn't able to get it all, and that is why I asked the question.

This note to which you referred says "black bars represent 1936 values shown on above diagram". What do you mean by that? I don't get it yet. I don't know just what you mean by "values".

A. I will explain it. The upper part of this chart shows the flow of energy between each two companies or each pair of companies, in both directions, drawn to scale, so many millimeters or inches across the bar corresponding to so many million kilowatt hours flowing from one company to the other.

In the lower part a similar scale is used to represent the flows for each of those years, 1934, 1935, 1936 and 1937. We just took out one year and show it in detail and the companies between which these transactions took place, by designating each transaction with a letter and showing it in the lower chart we can relate the flows or transactions for the several years.

Q. Perhaps it is very clear to you, and perhaps I am very stupid in reading the map, and probably I am. But you said the upper chart was drawn to scale. A little while ago you said there was no effort to show geographical locations. There is no scale on this thing, is there? I can't see one of them.

A. The width of the band connecting two companies, for example the New Jersey Power and Light Company and the Metropolitan Edison Company. The power identified as "O" showing a flow of 214,000,000 kilowatt hours to the Metropolitan Edison Company, is shown wider than

a similar bar indicating the flow from the Public Service Electric and Gas Company to the Philadelphia Electric Company, which flow amounted to 169,000,000 kilowatt hours. It is the scale for the bands indicating the flow rather than for the companies themselves.

Q. Did you draw this map or chart?

A. I had a draftsman draw it.

Q. Can you tell me that these lines are drawn to a scale and the character of the pen and the density of the ink all indicate something?

A. No. It is the width of the bar or the width of the band connecting the two companies that indicates the quantity or the amount.

Q. Is the scale which is utilized shown on this map so that anybody else could determine it, that is, that it is drawn according to scale?

A. Yes. The scale is shown in the lower part of the chart.

Q. Where is it?

A. To the right of the lower part and to the left of the lower part in millions of kilowatts.

Q. It is certainly a very minute scale.

A. Yes. It states "figures indicate kilowatt hours. Arrows show direction of flow. Width of band proportional to kilowatt hours".

Q. Did you say you used a millimeter scale?

A. I don't recall now whether it was a millimeter or an inch.

Q. You can't tell me just what each of these little things on the second line is? Is that it?

MR. McALLISTER: Without intending to interrupt, Mr. Paxson, I think it might be cleared up if Mr. Woll would indicate what this thing was drawn on and then photostated.

MR. PAXSON: He is offering this in evidence. Now, you are trying to bring in a bigger chart.

EXAMINER SPENCER: Proceed, Mr. Paxson.

MR. PAXSON: I am directing myself to the one Mr. McAllister offered in evidence.

THE WITNESS: Yes; it is drawn to an inch scale, and 300,000,000 kilowatt hours corresponding to one inch.

BY MR. PAXSON:

Q. 300,000,000 kilowatt hours corresponding to one inch, you say?

A. Yes.

Q. And you are able to take a line between the Philadelphia Electric Company and the Public Service Electric and Gas Company, that first line on the right, and you can tell from the looks of that line how many kilowatt hours flowed over it, can you?

A. By using the scale I can approximate it; yes, sir.

Q. Nobody could do it with the naked eye at all, could he, Mr. Woll?

A. This chart is a reproduction of an original chart which was drawn on a much larger scale, where one could read it with much greater precision than can be done on this reduced size chart.

MR. PAXSON: I have no further questions.

I still stand on my objection that this chart is not proper evidence in this case.

Redirect Examination

BY MR. McALLISTER:

Q. In order that the record may be entirely clear, Mr. Woll, will you state upon what sized chart the drawing was originally constructed?

MR. PAXSON: Just a minute, please. Is he going to use something other than this chart?

MR. McALLISTER: He is merely explaining something, Mr. Paxson.

EXAMINER SPENCER: No; he is not going to use any other chart.

MR. PAXSON: He seems to be using it.

MR. McALLISTER: He is merely explaining the manner in which this chart was constructed.

MR. PAXSON: Let him explain it without reference to that other chart.

MR. McALLISTER: He can make this record very clear as to just what took place and how this chart was constructed. And I think it is very important.

THE WITNESS: As originally constructed, this chart was built on a scale three times as big as the one that is used on this photostatic copy. I stated before that on this photostatic copy one inch corresponds to 300,000,000 kilowatt hours?

BY MR. McALLISTER:

Q. When you refer to the copy there, Mr. Woll, you refer to the copy that has been offered in evidence, do you not?

A. Yes, sir.

Q. Will you please proceed?

A. On the original chart it is three times as large and one inch corresponds to 100,000,000 kilowatt hours.

Q. And having constructed the chart on the larger scale, by what process was it reduced?

A. By photostatic process.

Q. By photographic process?

A. Yes.

Q. So that the scale utilized in the construction of the drawing and then reduced to the size of Exhibit No. 22, as offered in evidence, retains the precision which was accomplished by the use of the larger scale at the time it was constructed? Is that true?

A. That is right.

Q. Furthermore, Mr. Woll, do you ask anyone to undertake to determine the flow of energy between any two companies by evaluating the band which joins those companies, or is it a fact that the figures are shown on the chart?

A. The figures are shown on the chart.

Q. And the size of the band is merely to afford a means of visual comparison?

A. That is precisely what it is for. The width of the bands is merely for a comparison of the transactions between one system and another, or between one pair of systems and another pair of systems.

Q. And is the chart so constructed that if the size of the bands as constructed were minutely examined and compared it would represent relatively the movement of energy as indicated by those bands?

A. That is right.

MR. McALLISTER: I have no further questions.

MR. PAXSON: If the Commission please, again I move that this chart be rejected, upon the ground that it purports to contain data with respect to the Central Hudson Gas and Electric Company, the Pennsylvania Power and Light Company, the Philadelphia Electric Company, and the Metropolitan Edison Company, none of which is a party respondent to this proceeding, and any facts which they may have stated in any reports which they may file are not binding on the Jersey Central Power and Light Company. That

also applies to the Public Service Electric and Gas Company.

I also urge you that if, in any event, this Commission sees fit to receive this in evidence, the words at the top, "affecting the operations of the Jersey Central Power and Light Company", should be stricken, and the words "affecting interstate transfers" should be stricken in the legend below the middle of the chart—involving conclusions that have not been established.

EXAMINER SPENCER: Don't you think that the explanation that the witness has given in effect eliminates those words?

MR. PAXSON: No, Mr. Examiner. I am afraid that unconsciously or subconsciously they might influence someone's mind.

EXAMINER SPENCER: I see your point.

Have you any objection to amending the exhibit, Mr. McAllister?

MR. McALLISTER: I do have objection to amending the exhibit. The witness has clearly stated that this amount of energy was transmitted back and forth across the state lines exactly as he shows it there.

MR. PAXSON: It doesn't show anything affecting the operations of the Jersey Central Power and Light Company.

MR. McALLISTER: I am talking about the one at the bottom—"interchange of electric energy between the companies, affecting interstate transfers in 1935." He did not say those were the complete interstate transactions between those companies, but he said between these companies they are; and

they affect the interstate transactions of those companies. There may be a hundred others. But as to these companies he has shown exactly what they are, and he has taken the figures of the companies that the companies report themselves.

Going to the top of the chart, he shows the transactions between the State of New Jersey and the State of New York. With respect to the thing up there, "electric energy transactions between utilities affecting the operations", he did not say that they were the only ones, but there he says they affect the operations of the Jersey Central Power and Light Company.

And he has stated how they have, by reason of this inter-relation between the companies, which is shown by the interchange of energy between them. That is the only showing he has attempted to make by this chart.

Now, so far as Mr. Paxson's having said he is not bound by these transactions with the Metropolitan Edison Company, that statement of figures there with the Metropolitan Edison Company, is the report of the New Jersey Power and Light Company in this case.

So far as the Central Hudson is concerned, at the top, that is the report of the respondent in this case, the New Jersey Power and Light Company, as filed with the Commission under oath and as contained in their annual report.

Likewise, as to the showing as to the quantity of energy interchanged with the Public Service Electric and Gas Company, the reports of that company as submitted to this Commission under oath show the transactions that are recorded on this chart.

Time and again in the course of this proceeding, Mr. Paxson, for the respondent, and the witnesses who have appeared for the respondent, have relied upon

the records of the Public Service Electric and Gas Company.

If we are to assume that only one person, the respondent, has access to those records and they are only correct when they are interpreted and read by the respondent, we are certainly placed in an anomalous situation. When the reports come in here to this Commission from any one of these companies they represent the transactions for a complete year, broken down in such detail so that they can be checked, and they are not broken-up bits of incidental information picked out by the examination of this, that, and the other document or record of a company. They are worthy of consideration beyond any isolated bit of information that may be taken from a report of a company, and they are so treated and so recognized.

MR. PAXSON: I do not recall that he offered anything from the records of the Public Service Electric and Gas Company. But I will stand on my objections.

EXAMINER SPENCER: Mr. Woll, you obtained the figures that you have on this chart from the reports of these various companies, did you not?

THE WITNESS: Yes, sir.

EXAMINER SPENCER: Let the objection be overruled, with an exception noted for counsel for respondent.

Let the chart be received for whatever it may be worth, as Commission Counsel's Exhibit No. 22.

(The document above refered to was received in evidence and marked Commission Counsel's Exhibit No. 22.)

EXAMINER SPENCER: You may proceed.

MR. McALLISTER: When Witness Sibley was on the stand, Mr. Examiner, he showed a remarkable lack of information and knowledge of the contract existing between Utility Management Corporation and New Jersey Power and Light Company, and between E. M. Gilbert Engineering Corporation and New Jersey Power and Light Company respecting the Management of the company and the control or authority exercised by E. M. Gilbert Engineering Corporation over construction work on New Jersey Power and Light Company.

I ask that the record in this case be supplemented and completed by the submission on the part of the respondent of the contract between that company and Utility Management Corporation and E. M. Gilbert Engineering Corporation.

That becomes important in this case because of the unwillingness on the part of the witness to state or his inability to state under what terms and conditions the E. M. Gilbert Engineering Corporation and Utility Management Corporation have a say in the manner in which the company operates.

At this time I ask that the record be completed in that respect by the submission on the part of the respondent of these contracts since they are directly within their possession. Otherwise it would be necessary for us to secure them through other means.

It is my contention, and I now assert the fact that those two contracts, which are admitted to be in existence, very materially affect the weight which may be given to Mr. Sibley's testimony, inasmuch as he stated that he was vice-president and chief electrical engineer of the E. M. Gilbert Engineering Corporation, which is a part of the Utility Management Corporation, according to his statement on the record.

MR. PAXSON: Mr. Examiner, I move that the scandalous and impertinent remarks made by Mr. McAllister, Counsel for the Commission with reference to Mr. Sibley's testimony, be stricken from this record. He has no right as counsel to stigmatize his evidence in any way. Mr. Sibley's evidence was that he was not familiar with the contract and had never seen it.

Mr. McAllister is not in a police court, and I think he should conduct himself—

MR. McALLISTER: You do not need to worry about being in a police court.

MR. PAXSON: Secondly, as representing the Jersey Central Power and Light Company I object to the offer, if he has made an offer, of this contract upon the ground the Jersey Central Power and Light Company is not a party thereto.

MR. McALLISTER: I said the New Jersey Power and Light Company.

MR. PAXSON: I know; but the Jersey Central Power and Light Company is a party here and has a right to interpose its objection to the introduction of any evidence on this record. They are not bound in any way thereby. The issue here is the status of the Jersey Central Power and Light Company.

On behalf of the New Jersey Power and Light Company I object to the offer of this contract in evidence, if there is an offer, upon the ground it has not been shown that it has any bearing on this case and is wholly irrelevant and immaterial.

EXAMINER SPENCER: Gentlemen, I take it that neither Counsel for the Commission nor Counsel for Respondent would for a moment be interested in acting otherwise than as reputable counsel usually act

in a proceeding; and any remarks made in argument by either one would not be construed and should not be construed as any reflection on anyone.

So far as the Examiner is concerned, he does not feel that the witness Sibley wilfully refused to answer any question that was addressed to him.

On the question of this contract, Mr. McAllister, between the New Jersey Power and Light Company and—What other company is it?

MR. McALLISTER: Utility Management Corporation and E. M. Gilbert Engineering Corporation.

EXAMINER SPENCER: And your contention is that that contract provides for service by the Utility Management Corporation to New Jersey Power and Light Company?

MR. McALLISTER: That is correct, Mr. Examiner; and, likewise, the E. M. Gilbert Engineering Corporation provides for service.

EXAMINER SPENCER: Are those two companies separate and distinct now?

MR. McALLISTER: Yes.

EXAMINER SPENCER: Wasn't there testimony to the effect that one had absorbed the other one?

MR. McALLISTER: No, sir.

MR. PAXSON: I thought there was such testimony.

MR. McALLISTER: No; there was not. What he said was that they are now within the control of Utility Mutual Management Association, which is an entirely different organization, as counsel well knows.

EXAMINER SPENCER: I don't recall that there was any evidence that this Management Com-

pany had a contract with the Jersey Central Power and Light Company, was there, Mr. McAllister?

MR. McALLISTER: There was.

EXAMINER SPENCER: There was to that effect?

MR. McALLISTER: I asked the question.

MR. PAXSON: The Jersey Central Power and Light Company, Mr. McAllister?

MR. McALLISTER: The New Jersey Power and Light Company.

EXAMINER SPENCER: I asked as to the Jersey Central Power and Light Company. I recall he said there was as to the New Jersey Power and Light Company, but not with the other one.

MR. McALLISTER: That is true.

EXAMINER SPENCER: The Examiner will request New Jersey Power and Light Company to submit copies of these contracts between the New Jersey Power and Light Company and the Management Company and the E. M. Gilbert Engineering Corporation.

Have you any more witnesses, Mr. McAllister?

MR. McALLISTER: I have no more witnesses. But there are a few corrections I would like to make in the record at this time.

EXAMINER SPENCER: Last Friday morning the Examiner stated that he would rule that any designated relevant and material matter embraced in the application filed by the New Jersey Power and and Light Company with the Securities and Exchange Commission, identified as its file 46-98, dupli-

cates 1 and 2, would be admitted in evidence upon motion of counsel for the Commission, and that he would undertake, by an examination of the application, to determine whether there are relevant and material matters contained therein in order that an intelligent ruling might be made.

It does not appear that there will be an opportunity to make a sufficient examination of the application before the hearing is concluded, upon which a ruling may be based.

If Counsel for the Commission now desires to indicate the matter contained in the application which he wishes to offer, upon a determination that the same is relevant and material, it will be admitted.

MR. McALLISTER: Mr. Examiner, I have explained at considerable length in the statements I made on the record heretofore the application that was filed by New Jersey Power and Light Company with the Securities and Exchange Commission sets forth in detail the corporate organization of the New Jersey Power and Light Company, relevant facts as to its operations and sphere of operations in the State of New Jersey, the characteristics of and facts relating to the Jersey Central Power and Light Company, its sphere of operations, general capacity, surplus generating capacity, the control of New Jersey Power and Light Company through MYPANJ Utilities Company, the control of Staten Island Edison Corporation indirectly through New York State Gas and Electric Company, the desire on the part of New Jersey Power and Light Company to acquire the stock of the Jersey Central Power and Light Company so that the operations of these systems might be unified under the subholding control of NYPANJ Utility Company, all within the Associated Gas and Electric System.

The report clearly sets forth the present operations and contemplated operations between these companies which are hoped to be realized through the acquisition of the balance of the Common stock of the Jersey Central Power and Light Company.

I read extensively from the reports the other day, and I am not going to undertake to read those portions which directly relate to the issues here. They pertain principally to the availability of excess generating capacity of the Jersey Central Power and Light Company, which is a matter which has been variously referred to on the record in this case.

Take also the part I read from the other day, which also made reference to the ability of the New Jersey Power and Light Company to unify the operations in such fashion that these three subsidiaries, as they will be if the stock of the Jersey Central Power and Light Company is acquired by New Jersey Power and Light Company, are units or will be units of NYPANJ Utility Company; and the excess generating capacity of Jersey Central Power and Light Company made available to the New Jersey Power and Light Company through the construction of additional transmission lines between such properties, and that such generating capacity of Jersey Central Power and Light Company will be made available to Staten Island Edison Corporation, as contemplated by or as stated by the applications, through the construction of a transmission line from the property of the Jersey Central Power and Light Company at South Amboy, New Jersey, to the Staten Island Edison Corporation across the intervening Kill Van Kull, the body of water separating the State of New Jersey from the State of New York.

EXAMINER SPENCER: At what parts of the application do you find those things?

MR. McALLISTER: They are scattered all the way through.

EXAMINER SPENCER: I will determine now that it is relevant and will be admitted if you designate the parts.

MR. McALLISTER: I said I was asking that the application and the amended applications—

EXAMINER SPENCER: Now, let me understand it. They filed an application and, as I understand it, the application consists of all the exhibits, which would include copies of mortgage indentures and such as that, wouldn't it?

MR. McALLISTER: I stated specifically at the time I offered—

EXAMINER SPENCER: I am asking you now to state it for the record.

MR. McALLISTER: —that those indentures could be eliminated from my offer, so the record will not include those indentures.

I can check right through it and eliminate all I have. Those particular ones I am excluding I can check through and eliminate by number.

EXAMINER SPENCER: The ones that you are excluding, you say?

MR. McALLISTER: Yes.

EXAMINER SPENCER: Is that easier than designating the ones you include?

MR. McALLISTER: Yes.

EXAMINER SPENCER: Then, you may proceed.

MR. McALLISTER: That is the indenture securing the first mortgage bonds of the New Jersey Northern Gas Company, shown as Exhibit No. 2 in the application. The indenture is dated March 1, 1912.

Certificate of incorporation of Jersey Central Power and Light Company, with amendments, to August 1, 1931. That is identified in the record as Exhibit J-C-1.

Copy of by-laws of Jersey Central Power and Light Company, identified in the record in that case as exhibit J-C-2.

Indentures of Jersey Central Power and Light Company, identified in the record as Exhibit J-C-4.

With respect to amendment No. 3 to this application as filed on May 13, 1938 and amendment No. 4 to the application, filed at some time subsequent to May 20, 1938, the stamp is not shown as to the date it was received; but that is the date upon which the signature of the officer of the New Jersey Power and Light Company acknowledged the execution of a supplement.

As to those I am not asking that they be made a part of the record. They may be entirely excluded, with one exception, and that is the annual report of the company in 1935, which sets forth the arrangement under which the New Jersey Power & Light Company acquired certain stock in the Utilities Mutual Management Association, Inc.

Upon the filing of these contracts that I requested this afternoon with respect to the contract with Utility Management Corporation and E. M. Gilbert Engineering Corporation, then all reference to that part of the application on file with the Securities and Exchange Commission as set forth in amendments 3

and 4 to that application may go out; and I make no reference to it.

EXAMINER SPENCER: Let the record show that the motion of Commission's counsel that the parts of the application filed with the Securities and Exchange Commission by the New Jersey Power and Light Company designed by him is granted and the parts are admitted in evidence by reference.

MR. PAXSON: I wish to note an exception to the Examiner's ruling.

I also wish it noted on the record that this exhibit was introduced and admitted to be introduced subsequent to the time when respondents put in their case and constitutes new matter.

The rambling, rather incoherent statement of Counsel for the Commission indicates it has no relevancy here because it applies to things in future. The issue is a new issue to be decided by the Securities and Exchange Commission, or it is an issue to be decided by the Securities and Exchange Commission, and it is the opinion of respondent that the admission of this matter constitutes in effect a denial of due process and a denial of a fair hearing.

We haven't seen what is in it; we don't know what is in it, and we have no opportunity to be prepared to meet it if there are contained in it any conclusions or assumptions or statements of fact. It is not a public record. A public record is a record which is required to be kept by a public official in the performance of his duties and is one which is required to be kept by law, such as birth certificates, death certificates, deeds, and so on. It is in sense binding upon the Jersey Central Power and Light Company.

EXAMINER SPENCER: At this time, gentlemen, we will recess for five minutes.

(Whereupon, a short recess was taken, after which the following occurred:)

EXAMINER SPENCER: With respect to the admission of parts of the application in evidence, just referred to, it may be observed that this is an application that was made and verified and filed by respondent in this action.

MR. PAXSON: Will you name the respondent? There are two of them.

EXAMINER SPENCER: When I say "respondent", I mean the New Jersey Power and Light Company.

That notice of the motion and offer was given several days ago. And administrative officers are not bound by the common law rules of evidence or any statutory rules. The main thing the Commission is interested in is in obtaining facts. If there are statements in that sworn application which bear upon the issues in this case, the Examiner feels it is proper that the Commission should have the advantage of knowing those facts in order to arrive at a just conclusion. And inasmuch as there has been no surprise and nothing to deprive respondent of any right he may have so far as his objections are concerned and so far as his examinations are concerned, and inasmuch as respondent may now, since it has been admitted, on surrebuttal introduce such evidence as he may deem necessary, the Examiner feels that the admission of the application, with the exceptions noted, is quite proper.

Now, Mr. Paxson, do you wish to go into that matter any further as to the question of the application before introducing any evidence?

MR. PAXSON: I wish to take an exception and to be allowed to reiterate that this was offered and

its admission granted subsequent to the time our case was in.

I have no means of knowing for what purpose it may be used or employed, when it is an application containing lots of language which I have never seen. It is not in evidence at all. It is not a public record and there is nothing to rebut at this time. I don't know to what use it may be put, and I still state I believe this constitutes a denial of the right of a fair hearing and opportunity to be heard on that matter. It is impossible to put in rebuttal testimony when we see a file go in evidence by reference. We don't know what it contains. It has not been testified to. We don't know what is in it. There is nothing to rebut now. It raises a new issue, in my judgment, and new matter.

MR. McALLISTER: May I be heard on that at this time, Mr. Examiner?

EXAMINER SPENCER: Yes.

MR. McALLISTER: So far as respondent is concerned, New Jersey Power and Light Company, which filed that application, is the same party that appears here in this case.

EXAMINER SPENCER: Yes. I just so stated.

MR. McALLISTER: So far as Mr. Paxson is concerned, he is counsel here. Whether he is counsel over there or not I don't know. But the respondent knows. It is particularly significant that the respondent has not appeared here by any officer whatsoever.

I want to say also that I apprised Mr. Paxson of the fact that I intended to offer this application days before my case was completed, that I did offer it in

the first instance before Mr. Paxson was called upon to in any way put on his case in chief. And I repeated that request at various times during the course of this proceeding. And the record will show unquestionably that I have not been dilatory, so far as the offer is concerned.

Not only that, Mr. Examiner, but I am surprised to have the respondent come in here and say that they do not know, that they have not had an opportunity to rebut it. It is their sworn statement. I assume it is correct.

Respondent knows better than I do. Respondent knows whether or not it is correct. And I am only asking them to stand by that to which they have sworn, or otherwise correct it.

EXAMINER SPENCER: Let the record show that an exception is granted to respondent's counsel, to the ruling that the application be admitted.

You may proceed, Mr. McAllister.

MR. McALLISTER: May I speak off the record at this time, Mr. Examiner?

EXAMINER SPENCER: Off the record, please.

(Thereupon, an off-record discussion occurred which the Reporter was directed not to record, after which the following occurred.)

EXAMINER SPENCER: On the record. Mr. Grimsley, will you take the stand?

Whereupon

A. H. GRIMSLEY,

a witness recalled by and on behalf of the Federal Power Commission, having been previously sworn, was examined and testified as follows:

Redirect Examination

BY MR. McALLISTER:

Q. Mr. Grimsley, I ask you to read the question that is indicated there, and the answer as it appears in the record and state whether or not your answer is properly recorded. I have reference to page 307 of the record.

A. My statement there it is not a mere presumption. Abstract mathematics prove it.

MR. PAXSON: I agree with you.

EXAMINER SPENCER: Gentlemen, let the record show that counsel will make such typographical corrections in the record as they find and deem necessary and submit those corrections. If they agree, I will approve the corrections and they will be made a part of the record and the corrections may be made in the record, and if you gentlemen don't agree we will have to have a hearing on them.

Do you have anything further, Mr. McAllister?

MR. McALLISTER: No, sir.

(Witness excused.)

EXAMINER SPENCER: Anything further, Mr. Paxson?

MR. PAXSON: Nothing further.

EXAMINER SPENCER: You have nothing further, Mr. McAllister?

MR. McALLISTER: I have nothing further.

EXAMINER SPENCER: Let the record show that all supplements to exhibits, additional compilations or other documents be filed as heretofore directed or agreed upon by counsel for respondent and counsel for the Commission, be filed with the Commission on or before the 20th of October, 1938.

Let the record show that counsel for respondent is allowed until November 15, 1938, in which to file his brief and counsel for intervenor, if he desires to file a brief is allowed until November 15, 1938.

MR. PAXSON: Doesn't counsel for the Commission file a brief?

EXAMINER SPENCER: Under the practice they do not exchange briefs.

MR. PAXSON: Isn't this a new rule?

EXAMINER SPENCER: Under our present procedure counsel for the Commission doesn't file a brief.

MR. PAXSON: Then we have no opportunity to know what the issues are.

EXAMINER SPENCER: Off the record.

(Discussion off the record.)

EXAMINER SPENCER: On the record.

MR. McALLISTER: I merely want to note on the record that I desire an opportunity to file a brief.

EXAMINER SPENCER: Mr. Paxson, perhaps I can facilitate the matter. Suppose we let the record show, or rather do you agree, Mr. Paxson, that the matter of filing briefs may be left open for a period not exceeding ten days and you will be advised by letter as to what will be required?

MR. PAXSON: That I will be advised?

EXAMINER SPENCER: Yes, as to filing briefs.

MR. PAXSON: I think we ought to have a minimum until the 15th of November.

EXAMINER SPENCER: We will extend that ten days.

MR. PAXSON: This Commission would certainly want all the inforamtion it could get. I think it is a matter that merits serious consideration.

EXAMINER SPENCER: Off the record.

(Discussion off the record.)

EXAMINER SPENCER: On the record. The question I asked you was would you agree that the matter of filing briefs be left open at this time and that you be notified within ten days as to what will be required with respect to filing briefs and serving briefs and the time will be extended from the 15th to the 25th of November.

MR. PAXSON: That is quite all right.

EXAMINER SPENCER: All right, let the record show.

MR. McALLISTER: I am interested in hearing Mr. Paxson admit on the record that the contention he has made throughout is changed and the Commission is entitled to all the facts.

MR. PAXSON: I thought I was talking off the record but you, as usual have misundersfood me.

EXAMINER SPENCER: Is there anything further from either attorney? (After a pause.) Let the record show the hearing is concluded at 3:30 p. m.

(Whereupon, at 3:30 o'clock p. m., the hearing in the above entitled matter was concluded.)

CORRECTIONS TO BE MADE IN THE STENOGRAPHIC RECORD

It is hereby stipulated and agreed that the following corrections shall be made in the stenographic record of proceedings taken at the hearing of the above matter as recorded by the official reporter:

Page	*Line*	Correction
10	15	Change term "no doubt" to read "any doubt".
15	2	Insert "my" just preceding word "education".
15(a)	1	Change first word "in" to "from".
	11	Change word "in" to "from".
17	15	Insert "map" after the word "this".
18	18) 19) 20)	Correct to read ". . . Jersey Central Power and Light Company generates electric energy and serves the area indicated . . .".
24	19	Change word "capacity" to read "capability".
25	2	Insert word "system" after the word "power".
27	13) 14)	Correct to read ". . . plants in 1937 was about 366,000,000 kilowatt hours".
28	2	Change word "sold" to "out put".
	15	Change words "public service" to "Public Service".
30	6	Insert the word "in" just before the word "the".
31	7	"Receives" should read "received".
	13	The period in this line should be changed to a dash because the balance of the sentence is to be found on page 32, line 20. The dash at the end of the next line (page 32, line 21) should be changed to a period.

Page	*Line*	Correction
44	24	Insert the words "the exhibit" before the word "which" and eliminate the words "the paper" in the next following line.
46	13	Substitute the words "continuous service" for the word "continuing".
46	16	Insert the words "by New Jersey Power & Light Company" after the word "served".
49	22	Change the word "way" to "say".
50	3	Change the word "kilowatts" to read "kilowatt-hours".
	15	Insert the word "the" after the word "that".
52	25	Change the word "kilowatts" to read "kilowatt-hours".
56	23	Insert a comma (,) after the word "kilowatts".
60	21	Change the words "page 23" to read "page 28".
	26	Change symbols "KV" to read "KW" (two changes).
61	3	Change symbol "KV" to "KVA".
81	2	Insert after word "page" the figure "5".
82	14	Insert quotation marks after word "interconnection".
	15	Eliminate quotation marks preceding the word "therefore".
	17	Eliminate quotation marks after the word "Substation".
	22	Eliminate the word "entirely" and substitute the words "in parallel" so that this line will read "in parallel or in synchronism".
91	10	Change "kilowatts" to read "kilowatt-hours".
93	18	Change words "Long Island" to read "Staten Island".
96	25	Eliminate the word "Penn".
132	3	Substitute the word "that" for the word "there".

Page	*Line*	CORRECTION
134	23	Substitute the word "the" for the word "they".
136	16	Insert period after word "marked" and capitalize word "when" to read "When".
136	18	Eliminate word "and".
137	9	Correct "impedences" to "impedances".
138	10	Correct "impedences" to "impedances".
140	17	The word "calculated" to be enclosed in parentheses.
144	3	Substitute word "and" for word "or".
	4	Change word "here" to read "were".
145	19	Omit word "to".
146	21	Change the word "at" to "from".
148	9	Change "Exhibit No. 1" to read "Exhibit No. 16"
149	2	Insert word "through" after word "Company".
	5	Insert words "Substation of" after word "Atlantic".
	17	Change word "accepted" to word "admitted".
153	6	Change word "objection" to word "exception".
167	12	Correct the word "compedances" to word "impedances".
170	14	Substitute "Elizabethport" for "Elizabeth".
171	16	Change "sa" to "was".
197	11	Change word "our" to "my".
198	7	Substitute "while you were" to "why you are".
205	14	Correct "Brimsley" to "Grimsley".
211	4	Insert "in mind" after word "contracts".
	15)	Correct to read "as one part of this agreement
	16)	between the Pennsylvania Power and Light

Page	*Line*	CORRECTION
	17)	Company, Public Service Electric and Gas Company, and Philadelphia Electric Company interconnection operating arrangements . . . ."
217	8	Change word "Not" to read "Now".
223	20	Change "of" to "or".
	21	Change "operation" to "output".
225	7	Substitute the words "on the" for the word "or".
243	13	Eliminate the word "joint".
245	19	Insert the word "systems" after the word "major".
247	7	Eliminate the word "on".
	8	Insert the word "New" before the word "Jersey".
256	1	Insert symbol "KV" after figures "66".
	3)	Insert symbol "KV" after figures "66".
	4)	
258	19	Substitute the word "with" for the word "of".
	20	Correct word "powe" to read "power".
262	19	Change the word "what" to read "want".
267	2)	Change the word "steps" to read "step".
	11)	
	25	Change the word "are" to read "area".
268	8	Change the word "or" to read "of".
272	9	Change the word "and" to read "or".
	20	Insert the word "New" after the word "by".
289	8	Insert the word "at" after the word "identified".
	9	Eliminate the word "for" after the word "point".
290	10	Substitute the word "outside" for the word "out" and insert after the word "state" the words "or deliver energy".
295	9	Eliminate the words "economy power".

Page	*Line*	Correction
300	18	Insert the word "a" after the word "that".
307	19	Change sentence to read "It is not a mere presumption".
308	9	Change the word "at" to "in", and insert after the word "record" the word "as".
	18	Insert the symbol "KW" after the figures "10,000".
315	8	Change the word "for" to read "with".
	17	Change the word "it" to read "you".
317	2	Correct the sentence to show "Exhibit 6" instead of "Exhibit B-6".
318	4	Correct the sentence to show "Exhibit 6" instead of "Exhibit B-6".
324	7	Change "cheaper cost" to read "lower costs".
327	17	Change the word "misunderstand" to read "misunderstanding".
330	15	Change the word "iw" to read "it".
	21) 22) 23)	Correct answer to read "I do not believe that the Public Service Electric and Gas Company would shut down its Perth Amboy Plant without this connection".
331	13	Change the word "Kerney" to read "Kearney".
334	18	Insert the word "go" after the word "we".
337	8	Insert the word "not" after the word "ought".
489	23	Change "Richmond Plant" to "Livingston Plant".
495	3) 4)	Change "33,000 one-circuits" to read "33,000 volt circuits".
515	23	Change the word "operating" to read "generating".
521	25	Change "difference" to read "distance".
522	10	Change "Mechanic Street Substation" to read "Atlantic Substation".

Page	*Line*	CORRECTION
547	19) 22) 23)	In each line change "kilowatts" to read "kilowatt-hours".
592	2	Substitute the words "it grew up" for the "to operate".
	16	Change the word "difference" to read "different".
603	6	Change this line to read: "Will you please explain" instead of "Will you please examine".
638	10	Eliminate the word "it" after the word "and".
691	16	Change the word "instance" to read "instant".
728	3	Eliminate the word "in".
731	13	Change the word "it" to read "is".
743	19	Change the word "barring" to "regarding".
797	19	Change the word "know" to read "knows".
814	11	Change the word "relative" to read "relatively".
826	22) 23)	Change "New Jersey Power and Light Company" to read "Jersey Central Power and Light Company".
840	13	Change "it" to read "its".
851	9	Change the word "when" to read "them".
859	12	Change this line to read "is indeterminate" instead of "us undetermined".
867	16	Change "that" to read "and".
868	16	Change the word "rephase" to read "three-phase".
878	23) 24)	Change to read: "A witness recalled for and on behalf of the Federal Power Commission".
883	13	Change the word "what" to read "where".
887	1	Change the word "and" to read "in".

Page	*Line*	CORRECTION
889	12	Change the word "contruct" to read "construct".
902	10	Change the word "required" to read "require".
891	2	Change the word "reply" to "rely".
903	5) 6) 7)	Change the words "from Public Service Electric and Gas Company to Jersey Central Power and Light Company" to read: "from Jersey Central Power and Light Company to Public Service Electric and Gas Company".
926	25	Change the word "is" to read "are".
983	9	Insert the word "which" after the word "from".
1010	16	Change the word "flowing" to read "slowing".
1017	23	Change the words "it is" to read "is it".
1043	16	Change "abruft" to read "abrupt".
1047	11) 12)	Eliminate the words "and the manipulation of governors by the operator".
1072	11	Insert the word "you" after the word "with".
1086	2	Change the word "laymay" to read "layman".
1108	18	Change the words "turbo driven alternates" to read "turbo driven alternators".

Joseph F. Autenreith,
Counsel for Intervenor
Robert B. Weston,
Counsel for Respondent
Lambert McAllister,
Counsel for Federal Power Commission.

Approved except item on page 4 second from bottom. This item will not be changed. The official transcript will be corrected accordingly.

Carroll B. Spencer,
Examiner.

Jan. 9, 1939.

CORRECTIONS IN THE STENOGRAPHIC RECORD

It is hereby stipulated and agreed that the following corrections shall be made in the stenographic record of proceedings taken on the hearing of the above case as recorded by the official reporter:

Page	*Line*	Correction
21	3	"compiled": change to "complied".
29	9	"My theory is the company may be subject to the law at one time, it was not subject to it in 1934.": change to "My theory is that if the company was subject to the law at any time, it was not subject to it in 1934."
31	16	"our": change to "how".
34	11	"obstructious": change to "obstructionist".
35	25 & 26	". . . and when I say the switch is open, no electricity can flow over it": change to ". . . and when I say the switch is open I mean no electricity can flow over it . . ."
224	7	"The meter or delivery of power . . .": change to "The meter for delivery of power . . ."
224	10	"One hour meters.": change to "Watt hour meters."
237	23 et seq.	"Are you familiar with the Atlantic and and Light Street Substation . . .": change to "Are you familiar with the Atlantic Street Substation . . ."

Page	*Line*	CORRECTION
248	22	". . . look at the map and look at a line between . . .": change to ". . . look at the map and look at the line between . . ."
260	6	"interconnection": change to "interconnected".
274	25	"plan": change to "plant".
331	6	"Isn't there a great deal of excess capacity rate . . .": change to "Isn't there a great deal of excess capacity right . . ."
331	12	"Kerney": change to "Kearny".
352	23	"Then it continues on hour pools for about three-quarters of a mile . . .": change to "Then it continues on our poles for about three-quarters of a mile . . ."
354	3	"New Lison": change to "New Lisbon".
362	13	". . . if we can introduce the Public Service . . .": change to "if we can induce the Public Service . . ."
369	7	". . . in watering, so to speak, power from Jersey Central . . .": change to ". . . in ordering, so to speak, power from Jersey Central . . ."
375	12	"New Libson": change to "New Lisbon".
375	17	"Croners?": change to "Corners?"
393	13 et seq.	"A thousand would produce roughly one and three times that.": change to "A thousand would produce roughly one and three-tenths times that."
402	2	"Vergal": change to "verbal".
418	21	"I do not the turbines runnings would always be in excess . . .": change to "I do not believe that the turbines running would always be in excess . . ."
435	11	"Clarksburg, West Virginia.": change to "Clarksville, Tennessee."

Page	*Line*	Correction
439	16	"Consulting engineer and assistant in charge of operations.": change to "Consulting engineer and in charge of operations."
440	3 & 4	". . . Bachelor of Science and Electrical Engineering.": change to ". . . Bachelor of Science in Electrical Engineering."
441	4 & 5	". . . I was assigned to Battleship Arizona and Electrical Officer.": change to ". . . I was assigned to the Battleship Arizona as Electrical Officer."
442	22	"Killvan's Cull": Change to "Kill van Kull."
462	15	"His instructions are as far as I know ": change to "His instructions are, and as far as I know, . . ."
470	9	"We try to find an averagg instrument cost.": change to "We try to find an average increment cost."
470	21	"have": change to "has".
489	13	"Let the records show.": change to "Let the record so show."
490	5	". . . The Richmond plant": change to ". . . the Livingston plant . . ."
491	2	"We maintain the one at Livingston, Arlington, . . .": "We maintain the ones at Livingston, Arlington . . ."
493	11	". . . the routes off of . . .": change to ". . . the routes of . . ."
502	1	". . . because we have had other customers in the past.": change to ". . . because we have considered having other customers in the past."
511	20	"Up to 20,000 was can do it, . . .": change to "Up to 20,000 we can do it, . . ."
512	17	". . . and I going . . .": change to ". . . and I am going . . ."

IX.

DETERMINATION BY THE COMMISSION

(Entered July 18, 1939)

It appearing to the Commission that:

(a) On June 7, 1938, the Commission issued its show cause order directing New Jersey Power & Light Company to submit in writing, under oath, detailed information concerning its reported acquisition of 341,350 shares of the common stock of Jersey Central Power & Light Company in apparent violation of Section 203(a) of the Federal Power Act, and to show cause if any there be, why the Commission should not proceed to enforce the provisions of the Federal Power Act; that New Jersey Power & Light Company made due return to the show cause order, denying that Jersey Central Power & Light Company was a "public utility" as defined by the Federal Power Act, and asserting that no approval of the Federal Power Commission was required by law in the acquisition by respondent, New Jersey Power & Light Company, of the 341,350 shares of common capital stock of Jersey Central Power & Light Company; that respondent, by acquiring such stock had not violated section 203(a) or any other provisions of the Federal Power Act;

(b) The Commission, on July 5, 1938, instituted an investigation to determine all facts, conditions, practices, and matters relating to the transaction whereby the respondent, New Jersey Power & Light Company, on March 14, 1938, acquired 341,350 shares of the common capital stock of Jersey Central Power & Light Company, and assigned all such matters for

public hearing on August 29, 1938, to determine whether the acquisition by New Jersey Power & Light Company of certain shares of the common capital stock of Jersey Central Power & Light Company, on March 14, 1938, constituted the purchase, acquisition, or taking by a public utility of any security of any other public utility within the meaning of Section 203(a) of the Federal Power Act, as well as all facts pertaining to any other issue raised by the order to show cause theretofore issued and the return thereto by New Jersey Power & Light Company;

(c) Hearing upon the matters specified in the order of the Commission under date of July 5, 1938, was duly postponed to September 27, 1938; public hearing began on September 27, 1938, and was concluded on October 10, 1938; New Jersey Power & Light Company, respondent, appeared by counsel and Jersey Central Power & Light Company appeared as intervener and was represented by counsel; respondent and intervener were given full opportunity to be heard, to present evidence and testimony, to cross-examine witnesses, and submit briefs in support of their various contentions;

(d) The Commission having carefully reviewed all testimony and evidence adduced at the hearing on the matters and issues presented in this cause, and having carefully considered the briefs filed by the respondent, the intervener, and counsel for the Commission;

The Commission *finds* that:

(1) Jersey Central Power & Light Company owns and operates transmission facilities extending from its substation adjacent to its generating plant in South Amboy, New Jersey, to the south bank of the Raritan River where such transmission facilities

are joined to the transmission facilities of Public Service Electric and Gas Company; that such transmission facilities of Public Service Electric and Gas Company extend from the south bank of the Raritan River in said State to Mechanic Street substation of the Public Service Electric and Gas Company located at Perth Amboy, New Jersey; that such transmission facilities of the above-named companies are utilized for the transmission of electric energy in both directions between Mechanic Street substation and the substation of Jersey Central Power & Light Company adjacent to its generating plant in South Amboy; that such transmission facilities at Mechanic Street substation are connected directly and at all times with a common bus bar in the Mechanic Street substation; that normally electric energy passes over such transmission facilities daily in both directions between the points specified;

(2) Public Service Electric and Gas Company owns transmission facilities extending eastwardly from Mechanic Street substation to the mid-channel of Kill van Kull, a navigable body of water separating the State of New Jersey from Staten Island, New York; that such transmission facilities are joined at the mid-channel of Kill van Kul with transmission facilities of Staten Island Edison Corporation, which facilities extend from the point of connection to Atlantic substation of the Staten Island Edison Corporation located on Staten Island in the State of New York; that such transmission facilities of Public Service Electric and Gas Company and Staten Island Edison Corporation are attached to the same common bus bar at Mechanic Street substation to which is attached the transmission facilities of Jersey Central Power & Light Company and Public Service Electric and Gas Company, extending from Mechanic Street substation to South Amboy, New Jersey; that normally electric energy is trans-

mitted daily in both directions over the transmission facilities of Public Service Electric and Gas Company and Staten Island Edison Corporation between Atlantic substation and Mechanic Street substation; that the transmission facilities described provide a direct and interconnected line for the flow of electric energy between the substation of Jersey Central Power & Light Company located adjacent to its generating plant in South Amboy and Atlantic substation of Staten Island Edison Corporation on Staten Island in the State of New York, via Mechanic Street substation, and electric energy was transmitted over such transmission facilities between such points via Mechanic Street substation on numerous occasions during certain days and almost daily throughout 1936, 1937, and to September 1938; that there is no evidence or testimony of any change in such operations during this period or subsequent thereto; that electric energy transmitted over facilities extending from the substation adjacent to the generating plant of Jersey Central Power & Light Company in South Amboy, New Jersey to Atlantic substation, on Staten Island, in the State of New York, via Mechanic Street substation, is generated in the State of New Jersey and consumed in the State of New York; that electric energy transmitted from Atlantic Street substation to the substation of Jersey Central Power & Light Company in South Amboy, New Jersey, via Mechanic Street substation, is generated in the State of New York and consumed in the State of New Jersey;

(3) The transmission facilities owned and operated by Jersey Central Power & Light Company extending from its substation adjacent to its generating plant in South Amboy, New Jersey, to the south bank of the Raritan River in said State are transmission facilities utilized for the transmission of electric en-

Page	*Line*	Correction
517	11 & 12	"A good plant and good lines are better than a power plant . . .": change to "A good plant and good lines are better than a poor plant . . ."
517	15	"power plant": change to "poor plant, . . ."
518	3	". . . dependability of the past . . .": change to ". . . dependability in the past . . ."
521	22	"Killvan's Cull": change to "Kill van Kull."
522	8	"There is about 2,800 feet . . .": change to "There is about 2,800 feet . . ."
522	16	". . . 13 or 14 KVA . . .": change to ". . . 13,000 or 14,000 KVA. . . ."
525	16	Add a comma after "time".
	17	Add a comma after "open".
531	7	"It naturally would provide in some proportion . . .": change to "It naturally would divide in some proportion . . ."
535	25	"controlled": change to "control".
538	7	"of": change to "or".
539	21	"airbrake": change to "airbreak".
542	11	"which were getting": change to "which was getting . . ."
542	24	"unti": change to "unit".
543	5 & 6	Change answer to "I didn't understand that the energy would come from that particular generator."
551	16	". . . . it would affect us vitally." ". . . . it would not affect us vitally."
566	7	"electricity": change to "energy".
599	10, 11, 12	Delete.
614	2	Question mark instead of period.
634	12	"Killvane Cull": change to "Kill van Kull".
650	2	"Take into consideration any . . .": change to "Take into consideration in . . ."

Page	*Line*	CORRECTION
654	9	"many": change to "made".
656	14	"Killvan Cull": change to "Kill van Kull".
662	15	"general gas": change to "General Gas".
664	11	"Company direct": change to "Company to direct".
664	20	"to": change to "of".
666	24	"airbrake": change to "airbreak".
667	7	"set": change to "such".
668	19	"identify": change to "identity".
669	11	"affected": change to "effected".
670	15	"causing": change to "caused by".
677	11	"or": change to "at".
680	1	Add "it" at right end of the line.
680	2	Add comma after word "not".
680	2	"flow": change to "flowing".
688	5	"gigsaw": change to "jigsaw".
691	5	"excess": change to "case".
695	19	"Or they . . .": change to "Are they . . ."
696	1	"furnished by": change to "furnished to".
698	18	"226 KV lines": change to "two 26 KV lines".
704	5	"general cable": change to "General Cable".
705	13	"They are": change to "There are".
707	7	"general cable": change to "General Cable".
709	6	Delete word "cross".
727	9	"constance": change to "constants".
733	2	"Raitan": change to "Raritan".
734	7	"airbrake": change to "airbreak".
741	22	"car": change to "power".
744	10	"car": change to "power".
756	16	"interval": change to "integral".
770	23	"the least": change to "at least".
773	15	"I imagine that would be . . .": change to "I imagine they would be . . ."
774	5	"Jersen": change to "Jersey".
779	20	words "electrical for" should be omitted.

Page	*Line*	CORRECTION
779	22	". . . and that is handled . . .": change to ". . . and that was handled . . ."
781	21	"such a": change to "such as".
783	11 & 13	"NYPANG": change to "NYPANJ".
784	11	"NYPANG": change to "NYPANJ".
789	1	"than": change to "they".
793	16	"can this have to do": change to "can this have in relation to".
797	11	"so": change to "do".
811	23	"numberator": change to "numerator".
841	3	"0.82": change to "8200".
841	6	"0.84": change to "8400".
841	9	"0.84": change to "8400".
841	18	"0.84": change to "8400".
850	23	"asumed": change to "assumed".
859	12	"us": change to "is".
862	6	"has": change to "as".
872	25	"at": change to "that".
902	17	"It if": change to "It is".
921	23	"charge": change to "chart".
936	4	"mess": change to "mass".
945	5	"relates": change to "relate".
948	19	"of": change to "the".
949	3	"two": change to "to".
953	25	"ad-": change to "admitted".
975	8	"ehxibit": change to "exhibit".
988	21	"and Electrical": change to "in Electrical".
990	15	"design of minor": change to "design and minor".
992	1	"nane": change to "name".
992	12	"Light": change to "Irrigation".
993	22	"devising": change to "advanced".
994	24	"Killvan Cull": change to "Kill van Kull".
995	15	"was": change to "has".
1000	20	"voltage": change to "load".

Page	*Line*	CORRECTION
1002	12	Delete "from Jersey Central Power & Light Company to that substation".
1007	22	"compilation": change to "computation" and "trenchant": change to "transient".
1016	17	"and": change to "an".
1018	24	"excess": change to "increased".
1029	12	"month": change to "must".
1029	15	"mumerical": change to "numerical".
1043	16	"abruft": change to "abrupt".
1045	3	"abruft": change to "abrupt".
1046	15	"abruft": change to "abrupt".
1053	17	"critidizing": change to criticizing".
1053	19	"We might have worse if I tried it": change to "We might be worse off if I tried it".
1077	6	"where": change to "were".
1080	11 & 12	both "impedences": change to "impedances".
1080	23	"abruft": change to "abrupt".
1086	2	"incomprehensive": change to "incomprehensible" and "laymay": change to "layman".
1089	3	"amoung": change to "amount".
1093	2	"second": change to "seconds".
1099	3	Delete one "taking".
1106	25	"a curve": change to "occur".
1107	3	"adopt": change to "adapt".
1108	9	"stead": change to "steady".
1110	23	"interrupt you"; change to "interpret you".
1112	24	"of": change to "or".
1113	11	Question mark instead of period.
1114	2	"opwning": change to "opening".
1114	17	"quantity": change to "quality".
1114	15	"minutely": change to "minute".
1115	14	"minutely": change to "minute".
1115	17	"quantity": change to "quality".
1115	22	"operataor": change to "operator".

Page	*Line*	Correction
1116	3	"minutely": change to "minute".
1116	7	"quantity": change to "quality".
1117	9	"to": change to "of".
1118	8	"I don't think is what you mean,": change to "I don't think that is what you mean,".
1121	10	"that the steam": change to "that when the steam".
1121	11	"return": change to "returns".
1121	18	"steam rate"; change to "system load".
1121	24	"machine": change to "machines".
1123	3	"only": change to "on the".
1123	3	"of": change to "or".
1123	10	"of geographic": change to "or geographic".
1124	11	"not"; change to "no".
1126	3	"necessary": change to "unnecessary".
1135	7	". . . if that is the chart to which you prepared . . .": change to ". . . if that is the chart which you prepared . . .".
1148	4	"purport": change to "purports".
1150	21	"reacing": change to "reading".
1159	8	"Public Service and Electric Company": change to "Public Service Electric & Gas Company".
1162	1	"ofject": change to "object".
1166	22 & 23	"Kil von Kul": change to "Kill van Kull".
1172	4	"goes": change to "go".
1175	10	"agree": change to "agreed".
1175	23	"does't": change to "doesn't".

Lamont McAllister,
Counsel for Commission.
Joseph H. Autenreith,
Counsel for Intervenor.

C. Edward Paxson,
Robert M. Weston,
Counsel for Respondent.
By Robert M. Weston.

(Handwritten):

Approved except item on page 3, ninth from bottom of page. This item will not be changed. The official transcript will be corrected accordingly.

Carroll B. Spencer,
Examiner.

Jan. 9, 1939.

CORRECTIONS IN THE TRANSCRIPT OF THE RECORD OF THE HEARING IN DOCKET NO. IT-5518, NEW JERSEY POWER & LIGHT COMPANY AND JERSEY CENTRAL POWER & LIGHT COMPANY

The following corrections in the transcript of the above case are made:

Page 11, 6th line from the bottom, strike out the word "proper" and insert "in apt time".

Page 17, last line, strike out the word "will" and insert the word "may".

Page 29, strike out the last two lines and insert, "The Examiner can understand that figures for 1934 may have some bearing upon the receipts", and change the word "for" in the first line on page 30 to "in".

Page 30, 10th line from the bottom, correct the statement of the Examiner to read as follows: "I have not taken notice of the fact that this is a public utility. It is a question of fact as to whether it is a public utility within

the meaning of the Federal Power Act and referring to it as a public utility will not within itself denominate it a public utility within the meaning of the Federal Power Act".

Page 35, 1st line, insert after the first word "has", the words "is that".

Page 35, 3d line, after the word "statement", insert the word "that".

Page 42, 3d line from the last, place the words "will be established later" in quotation marks.

Page 45, insert the word "so" after the word "record" in the second remark by the Examiner, so that the statement will read, "Let the record so show".

Page 101, 8th line from the last, change the word "shall" to "will".

Page 104, 14th line, change the word "to" to "for".

Page 153, 6th line, strike out the word "objection" and insert the word "exception".

Page 190, 15th line, strike out the word "if" appearing between the words "that" and "it" and insert the word "might" between the words "it" and "be".

Page 387, 2nd line of Examiner's first remark, change the word "is" to "are", and in the second remark of the Examiner, add, after the word "whether" in the first line of said remark and before the word "true" in the second line of said remark, the words "my statement was".

Page 489, line 14, under Examiner's statement, insert the word "so" between the words "records" and "show".

Page 584, first statement by the Examiner, strike out the word "neither" between the words "could" and "hear", and insert the word "neither" between the words "hear" and "the", and change the word "or" at the end of the line to "nor".

Page 709, 3d line, strike out the word "and" between

the words "filed" and "properly" and insert the word "when".

Page 823, 1st line of Examiner's second remark, insert the word "has" between "Autenrieth" and "already".

Page 847, 7th line, insert after the word "supplying" the word "energy", and in the 8th line insert the word "that" between the words "recall" and "there", and change the word "to" to "on".

Page 937, in the Examiner's second remark, insert the word "that" after the word "understanding" and before the word "it".

Page 938, in the Examiner's second statement, add the word "but" after the comma at the end of the first line, and strike out the word "or" in the beginning of the second line.

Page 944, in the Examiner's second statement, insert the word "that" between the words "saying" and "upon" in the first line.

Page 945, 5th line, change the word "points" to the word "parts".

Page 960, 6th line, change the word "name" to "naming".

Page 1016, 15th line, strike out the words "he thinks".

Page 1022, 5th line from the bottom, insert the word "as" before the word "to".

Page 1033, 6th line from the bottom, change the word "would" to "had".

Page 1060, 11th line, insert the word "his" between the words "to" and "qualifications".

Page 1064, 3d line from the bottom, strike out the word "and".

Page 1066, insert after the 3d paragraph in the Examiner's first statement the following: "Attention was called to the fact that an exhibit had been introduced and as-

signed to No. 20 and that this one under discussion could not be assigned that number."

Page 1104, 5th line from the bottom, change the word "not" to "no", and 4th line from the bottom, insert between the word "or" and the word "give" the words "you may."

Page 1105, in the Examiner's second statement, strike out the word "don't" between the words "Let's" and "get".

Page 1119, the first question by the Examiner, insert at the beginning, before the word "Steam", the words "He refers to", and place a period after the word "system".

Page 1156, first statement by the Examiner, place a question mark after the word "words" in the second line, and strike out the words "or do you".

Page 1167, first statement by the Examiner, insert the word "that" between the word "now" and the word "it".

Page 1169, first statement by the Examiner, in the second line, insert the word "the" between the word "that" and the word "parts", and in the fourth line of this statement, insert between the word "Company" and the word "are" the following: "designated by him is granted and the parts".

Page 1173, in the Examiner's first statement, in the second line, strike out the word "with" and insert the word "to".

Page 1175, in the Examiner's third statement, line 3, change the word "agree" to "agreed", and in line 4, strike out the words "by filing" and insert the words "be filed".

Page 1176, in the Examiner's third statement, line 3, insert the word "filing" between the words "of" and "briefs". In the Examiner's last statement on this page, insert the word "that" in the second line between the word

"agree" and the word "the", and strike out the words "not later" in the third line and the word "than" in the fourth line.

Carroll B. Spencer,
Atty. Examiner.

Jan. 9, 1939.

ergy in interstate commerce, and therefore, Jersey Central Power & Light Company is a "public utility" within the meaning of the Federal Power Act;

(4) New Jersey Power & Light Company owns and operates facilities for the transmission of electric energy in interstate commerce;

(5) The acquisition of 341,350 shares of the common capital stock of Jersey Central Power & Light Company by New Jersey Power & Light Company was the acquisition by a public utility of the securities of another public utility within the meaning of Section 203(a) of the Federal Power Act; that New Jersey Power & Light Company, having acquired such securities without first having secured an order of the Commission authorizing it to do so, has acquired such securities in violation of the express provisions of Section 203(a) of the Federal Power Act.

By the Commission,
Leon M. Fuquay,
Secretary.

X.

APPLICATION FOR REHEARING BY NEW JERSEY POWER & LIGHT COMPANY

(Filed Aug. 16, 1939)

To the Federal Power Commission:

The petition of New Jersey Power & Light Company respectfully represents that:

I. The exact legal name and the post-office address of your petitioner is:

New Jersey Power & Light Company,
9 West Blackwell Street,
Dover, New Jersey.

II. The name and post-office address of your petitioner's attorneys, to whom all correspondence with regard to this application should be addressed, is as follows:

Travis, Brownback & Paxson,
61 Broadway,
New York, New York.

III. This application is made for a rehearing of a so-called "Determination by the Commission", entered by your Honorable Commission on July 18, 1939; and for the abrogation of the said Determination, on the following grounds:

(1) That there is no substantial evidence in the record of the proceedings had herein before your Honorable Commission to support said Determination, and particularly findings numbered (3) and (5); and that said findings are arbitrary and capricious for lack of such factual support;

(2) That the conclusions reached in the said Determination, and especially as to the status of Jersey

Central Power & Light Company, and as to the violation of Section 203(a) of the Federal Power Act by your petitioner, are not authorized by a due and proper construction of the terms of the Federal Power Act; and are reached in violation of the terms thereof; and that in making the said Determination, your Honorable Commission has departed from the applicable principles of law and statutory construction;

(3) That the said Determination (and particularly findings numbered (3) and (5)), invades, abrogates, and nullifies rights guaranteed to your petitioner under the terms of the Constitution of the United States; and Amendments V and X and Article I, Section 8, Subdivision 3 thereof;

(4) That if the said Determination (and particularly findings numbered (3) and (5)), is, by due and appropriate construction deemed to be authorized by the terms of the Federal Power Act, then the said Act violates and invades the rights guaranteed to your petitioner by the Constitution of the United States, and Amendments V and X and Article I, Section 8, Subdivision 3 thereof;

all as more fully hereinafter set out.

IV. The findings made by your Honorable Commission in the said Determination are not supported by substantial evidence, and are contrary to the evidence, in the following respects:

A. As to finding number (1), referring to the connecting transmission facilities of Jersey Central Power & Light Company (hereinafter called "Jersey Central") and Public Service Electric and Gas Company (hereinafter called "Public Service"), located between South Amboy and Perth Amboy in the State of New Jersey:

1. "* * * such transmission facilities of the above-named companies are utilized for the transmission of electric energy in both directions between Mechanic Street substation and the substation of Jersey Central * * *"

The uncontroverted testimony of witness Crumley, who actually operates the Jersey Central property, and of witness Sibley, who investigated the operations of both companies, demonstrates conclusively that the transmission facilities of Jersey Central at South Amboy, extending to the Raritan River, are utilized solely for the transmitting of electric energy to the Raritan River where such facilities connect with the transmission facilities of Public Service, and are not utilized by Jersey Central for the transmission of said energy to Mechanic Street substation of Public Service, contrary to the implication of said finding. The said uncontroverted testimony clearly shows that the said transmission facilities of Jersey Central are not used or utilized by Jersey Central for the receipt of commercial energy from said Public Service except for rare emergency occasions; and that instant flashes of energy received by Jersey Central over the said facilities are of a casual and accidental character, having no commercial significance, and are immaterial to the business of the company, or the matters at issue in this proceeding.

2. "* * * such transmission facilities at Mechanic Street substation are connected directly and at all times with a common bus bar in the Mechanic Street substation * * *"

The bus bar in the Mechanic Street substation of Public Service Electric & Gas Company is shown by such testimony to be a facility owned and operated by,

and under the sole and exclusive control of, said Public Service, and is shown not to be a facility "common" to Public Service and Jersey Central; and no transmission facilities of Jersey Central are connected with such bus bar; contrary to the implication contained in said finding.

3. "* * * normally electric energy passes over such transmission facilities daily in both directions between the points specified * * *"

The testimony of the above witnesses shows that energy is not "normally" transferred daily from said Public Service to Jersey Central, but that transfers in this direction are of unusual and instantaneous character.

B. As to the finding number (2), referring to the said facilities of Jersey Central and Public Service, and the certain separate and distinct connecting facilities between Public Service and Staten Island Edison Corporation:

1. "* * * that the transmission facilities described provide a direct and interconnected line for the flow of electric energy between the substation of Jersey Central Power & Light Company located adjacent to its generating plant in South Amboy and Atlantic substation of Staten Island Edison Corporation on Staten Island in the State of New York, via Mechanic Street substation, * * *"

Witnesses Crumley, Sibley and Lytel have demonstrated, without controversy, that the flow of electric energy between the interconnecting facilities of Jersey Central and Public Service is a flow unconnected and unrelated in any commercial or business sense with any flow of power which may occur on the interconnecting facilities of said Public Service and Staten

Island Edison Corporation; contrary to the necessary implications contained in said recited portion of said finding number (2), and contained in other similar portions of such finding.

2. "• • • such transmission facilities of Public Service Electric and Gas Company and Staten Island Edison Corporation are attached to the same common bus bar at Mechanic Street substation to which is attached the transmission facilities of (Jersey Central and Public Service) • • •"

The said bus bar is, as above pointed out, shown to be a Public Service facility, and connected only to Public Service transmission facilities, not "common" to Public Service and Jersey Central and Staten Island Edison Corporation; all contrary to the terms of such portion of said finding number (2).

3. "• • • electric energy transmitted over • • • (Jersey Central facilities) to Atlantic substation, on Staten Island, in the State of New York, via Mechanic Street substation, is generated in the State of New Jersey and consumed in the State of New York; that electric energy transmitted from Atlantic Street substation to • • • (Jersey Central facilities) via Mechanic Street substation, is generated in the State of New York and consumed in the State of New Jersey • • •"

The evidence in this proceeding shows that there is no routing or sending of energy between Jersey Central and Staten Island Edison Corporation "via" facilities of Public Service. Such evidence rebuts the inference contained in the above finding that any consumption of Staten Island energy by Jersey Central, or any consumption of Jersey Central energy by Staten Island, is a matter of ordinary or usual course.

or is a result of volition or desire, or intent of the parties concerned, or is material to the matters in issue in this proceeding or is of other than strictly academic and scientific interest. The relevant evidence in this proceeding demonstrates that electric energy transmitted over facilities of Jersey Central, at the place in question, is transmitted to and received from, Public Service Electric & Gas Company—delivery being taken by both companies at a point within the State of New Jersey.

C. As to finding number (3), *in toto:*

There is no evidence whatsoever in this proceeding that the transmission facilities owned and operated by Jersey Central at the place in question, are utilized by the said company or by any other person for the transmission of electric energy in interstate commerce, and the uncontradicted testimony of witnesses testifying as to the business done by Jersey Central thereover, demonstrates that such facilities are utilized only for the transmission of electric energy between Jersey Central and Public Service Electric & Gas Company within the State of New Jersey; and as a matter of intrastate local traffic or commerce between the said companies. That portion of finding number (3) to the effect that Jersey Central is a "public utility" within the meaning of the Federal Power Act, is in direct contradiction to the testimony of witnesses familiar with the facts as to the business done by the said company.

D. As to finding number (5):

There is no evidence in the proceedings had herein before this Commission, that Jersey Central Power & Light Company is a "public utility" within the meaning of Section 203(a) of the Federal Power Act,

and the facts brought out in the record herein demonstrate that such company is not a "public utility" within such meaning. There is, therefore, no evidence that New Jersey Power & Light Company, in acquiring 341,350 shares of the common capital stock of Jersey Central Power & Light Company, has violated the provisions of said Section 203(a) of the Federal Power Act.

V. Part II of the Federal Power Act, entitled "Regulation of Electric Utility Companies Engaged in Interstate Commerce", provides, *inter alia*, that Federal regulation of that part of the business of transmitting and selling electric energy for ultimate distribution to the public:

> "* * * which consists of the transmission of electric energy in interstate commerce and the sale of such energy at wholesale in interstate commerce is necessary in the public interest, such Federal regulation, however, to extend only to those matters which are not subject to regulation by the States." (Act, Section 201, Subdivision (a))

That said Part II further provides that:

> "The Commission shall have jurisdiction over all facilities for such transmission or sale of electric energy, but shall not have jurisdiction, except as specifically provided in this Part and the Part next following, over facilities used for the generation of electric energy or over facilities used in local distribution or only for the transmission of electric energy in intrastate commerce, or over facilities for the transmission of electric energy consumed wholly by the transmitter."

By the enactment of the above provisions, Congress has specifically limited the regulatory power delegated to

your Honorable Commission over electric utility companies, and has excluded from the application of the Act Jersey Central Power & Light Company; which company is, by uncontroverted testimony, shown to be, in all its affairs and matters, subject to regulation by the New Jersey Board of Public Utility Commissioners. Your Honorable Commission has been thereby specifically denied jurisdiction over the facilities of Jersey Central Power & Light Company; which said facilities are used only in generation of electricity at places within New Jersey, distribution and sale of such energy to consumers entirely located within New Jersey, and transmission of such energy at and to places located entirely within New Jersey. In finding that Jersey Central is a "public utility", your Honorable Commission has found that such company is subject to your regulatory power and jurisdiction. In making such finding, your Honorable Commission has erroneously construed the above recited limitations contained in the Federal Power Act.

Under the provisions of Section 213(e):

> "The term 'public utility' when used in this Part or in the Part III means any person who owns or operates facilities subject to the jurisdiction of the Commission under this Part."

The above provision, read in connection with other provisions of the Act, including provisions set out in paragraph V above, clearly shows the intent and purpose of Congress not to include electric utility companies such as Jersey Central, which carries on only an intrastate business, within the meaning of the term "public utility" as used in the said Act and especially Section 203(a) thereof. Your Honorable Commission in entering the Determination here complained of, and especially findings numbered (3) and (5) thereof, has, therefore, erroneously construed the said provision of the said Federal Power Act. In failing to

follow the pertinent decisions of the United States Supreme Court which bear upon the proper construction of said Act, as pointed out in arguments and briefs presented by your petitioner, your Honorable Commission has failed to follow controlling legal principles in construing said Act.

VI. As demonstrated by uncontradicted testimony in this proceeding, Jersey Central is concerned with, and carries on commerce in electric energy solely within the State of New Jersey and not to any border line of such State. Its said business, commerce and affairs are exclusively and entirely carried on within and appertain to the State of New Jersey and citizens and residents thereof. The power to regulate the business and affairs of Jersey Central, or any part thereof, has not been delegated to the United States or the Congress thereof, under the terms of Article One, Section 8, Subdivision 3, of the Constitution; but has been specifically reserved to the State of New Jersey by Amendment X of the said Constitution. In assuming to make the Determination here complained of and especially findings numbered (3) and (5), your Honorable Commission has cast doubts upon the legality of the proceedings whereby your petitioner, New Jersey Power, acquired stock of Jersey Central; and upon the present title and right of said New Jersey Power to have and hold such stock; and has thus deprived your petitioner, New Jersey Power, of the free use and disposition of its property, without due process of law.

Wherefore, for the reason hereinabove set forth, your petitioner respectfully prays:

(a) That your Honorable Commission grant a rehearing in this proceeding;

(b) That upon such rehearing, or without further hearing, your Honorable Commission enter an order abrogating the "Determination by the Commis-

sion" dated July 18, 1939 entered herein; and make and enter findings that Jersey Central Power & Light Company is not a "public utility", as defined by the Federal Power Act; and that the acquisition of 341,350 shares of the common capital stock of Jersey Central Power & Light Company by New Jersey Power & Light Company was not the acquisition by a public utility of the securities of another public utility within the meaning of Section 203(a) of the Federal Power Act.

NEW JERSEY POWER & LIGHT COMPANY

By R. N. MALEHORN
Secretary

State of New York
County of New York ss.:

R. N. Malehorn, being duly sworn, deposes and says: That he is the Secretary of New Jersey Power & Light Company, the petitioner herein; that he has read the foregoing petition and knows the contents thereof; that the statements therein contained are true and correct to the best of his knowledge and belief.

R. N. MALEHORN

Sworn to before me this 15th day of August, 1939.

Dorothy K. Richards
Notary Public, Kings County
Kings Co. Clks. No. 63, Regs. No. 170
N. Y. Co. Clks. No. 154, Regs. No. 0R100
Commission expires March 30, 1940.

CERTIFICATE OF SERVICE ON APPLICATION FOR REHEARING

I hereby certify that on August 15th, 1939, there was served the foregoing document upon all parties of record in this proceeding by mailing a copy thereof properly addressed to Joseph F. Autenrieth.

Dated at Washington, D. C., this 16th day of August, 1939.

C. Edward Paxson
By (signature) William J. Duiker
William J. Duiker

Of Counsel for:

New Jersey Power and Light Company
and
Jersey Central Power and Light Company

XL

APPLICATION FOR REHEARING BY JERSEY CENTRAL POWER & LIGHT COMPANY

(Filed Aug. 16, 1939)

To the Federal Power Commission:

The petition of Jersey Central Power & Light Company respectfully represents that:

I. The exact legal name and the post office address of your petitioner is as follows:

Jersey Central Power & Light Company,
Jersey Central Building,
Asbury Park, New Jersey.

II. The name and post office address of your petitioner's attorneys, to whom all correspondence with regard to this application should be addressed, is as follows:

Antenrieth & Wortendyke,
1181 Raymond Blvd.,
Newark, New Jersey.

III. This application is made for a rehearing of a so-called "Determination by the Commission", entered by your Honorable Commission on July 18, 1939; and for the abrogation of the said Determination, on the following grounds:

(1) That there is no substantial evidence in the record of the proceedings had herein before your Honorable Commission to support said Determination, and particularly findings numbered (3) and (5); and that said findings are arbitrary and capricious for lack of such factual support;

(2) That the conclusions reached in the said Determination, and especially that Jersey Central Power & Light Company is a "public utility" within the meaning of the Federal Power Act, are not authorized by a due and proper construction of the terms of the Federal Power Act, and are reached in violation of the terms thereof; and that in making the said Determination, your Honorable Commission has departed from the applicable principles of law and statutory construction;

(3) That the said Determination (and particularly finding number (3)), invades, abrogates, and nullifies rights guaranteed to your petitioner under the terms of the Constitution of the United States; and Amendments V and X and Article I, Section 8, Subdivision 3 thereof;

(4) That if the said Determination (and particularly finding number (3)), is, by due and appropriate construction deemed to be authorized by terms of the Federal Power Act, then the said Act violates and invades the rights guaranteed to your petitioner by the Constitution of the United States, and Amendments V and X and Article I, Section 8, Subdivision 3 thereof;

all as more fully hereinafter set out.

IV. The findings made by your Honorable Commission in the said Determination are not supported by substantial evidence, and are contrary to the evidence, in the following respects:

A. As to finding number (1), referring to the connecting transmission facilities of Jersey Central Power & Light Company (hereinafter called "Jersey Central") and Public Service Electric and Gas Company (herein-

after called "Public Service"), located between South Amboy and Perth Amboy in the State of New Jersey:

1. "* * * such transmission facilities of the above-named companies are utilized for the transmission of electric energy in both directions between Mechanic Street substation and the substation of Jersey Central * * *"

The uncontroverted testimony of witnesses for Respondent and Intervenor in this proceeding demonstrates conclusively that the transmission facilities of Jersey Central at South Amboy, extending to the Raritan River, are utilized solely for the transmitting of electric energy to the Raritan River where such facilities connect with the transmission facilities of Public Service, and are not utilized by Jersey Central for the transmission of said energy to Mechanic Street substation of Public Service, contrary to the implication of said finding. The said uncontroverted testimony clearly shows that the said transmission facilities of Jersey Central are not used or utilized by Jersey Central for the receipt of commercial energy from said Public Service except for rare emergency occasions; and that instant flashes of energy received by Jersey Central over the said facilities are of a casual and accidental character, having no commercial significance, and are immaterial to the business of the company, or the matters at issue in this proceeding.

2. "* * * such transmission facilities at Mechanic Street substation are connected directly and at all times with a common bus bar in the Mechanic Street substation. * * *"

The bus bar in the Mechanic Street substation of Public Service Electric & Gas Company is shown by such testimony to be a facility owned and operated by,

and under the sole and exclusive control of, said Public Service, and is shown not to be a facility "common" to Public Service and Jersey Central; and no transmission facilities of Jersey Central are connected with such bus bars contrary to the implication contained in said finding.

3. "* * * normally electric energy passes over such transmission facilities daily in both directions between the points specified. * * *"

The testimony of the above witnesses shows that energy is not "normally" transferred daily from said Public Service to Jersey Central, but that transfers in this direction are of unusual and instantaneous character.

B. As to the finding number (2), referring to the said facilities of Jersey Central and Public Service, and the certain separate and distinct connecting facilities between Public Service and Staten Island Edison Corporation:

1. "* * * that the transmission facilities described provide a direct and interconnected line for the flow of electric energy between the substation of Jersey Central Power & Light Company located adjacent to its generating plant in South Amboy and Atlantic substation of Staten Island Edison Corporation on Staten Island in the State of New York, via Mechanic Street substation, * * *"

Witnesses for Respondent and Intervenor herein have demonstrated, without controversy, that the flow of electric energy between the interconnecting facilities of Jersey Central and Public Service is a flow unconnected and unrelated in any commercial or business sense with any flow of power which may occur on the interconnecting facilities of said Public Service and

Staten Island Edison Corporation; contrary to the necessary implications contained in said recited portion of said finding number (2), and contained in other similar portions of such finding.

2. "* * * such transmission facilities of Public Service Electric and Gas Company and Staten Island Edison Corporation are attached to the same common bus bar at Mechanic Street substation to which is attached the transmission facilities of (Jersey Central and Public Service) * * *"

The said bus bar is, as above pointed out, shown to be a Public Service facility, and connected only to Public Service transmission facilities, not "common" to Public Service and Jersey Central and Staten Island Edison Corporation; all contrary to the terms of such portion of said finding number (2).

3. "* * * electric energy transmitted over * * * (Jersey Central facilities) to Atlantic substation, on Staten Island, in the State of New York, via Mechanic Street substation, is generated in the State of New Jersey and consumed in the State of New York; that electric energy transmitted from Atlantic Street substation to * * * (Jersey Central facilities) via Mechanic Street substation, is generated in the State of New York and consumed in the State of New Jersey. * * *"

The evidence in this proceeding shows that there is no routing or sending of energy between Jersey Central and Staten Island Edison Corporation "via" facilities of Public Service. Such evidence rebuts the inference contained in the above finding that any consumption of Staten Island energy by Jersey Central, or any consumption of Jersey Central energy by Staten Island, is a matter of ordinary or usual course, or is a result of volition or desire, or intent of the parties con-

cerned, or is material to the matters in issue in this proceeding or is of other than strictly academic and scientific interest. The relevant evidence in this proceeding demonstrates that electric energy transmitted over facilities of Jersey Central, at the place in question, is transmitted to, and received from, Public Service Electric & Gas Company—delivery being taken by both companies at a point within the State of New Jersey.

C. As to finding number (3), *in toto:*

There is no evidence whatsoever in this proceeding that the transmission facilities owned and operated by Jersey Central at the place in question, are utilized by the said company or by any other person for the transmission of electric energy in interstate commerce, and the uncontradicted testimony of witnesses testifying as to the business done by Jersey Central thereover, demonstrates that such facilities are utilized only for the transmission of electric energy between Jersey Central and Public Service Electric & Gas Company within the State of New Jersey; and as a matter of intrastate local traffic or commerce between the said companies. That portion of finding number (3) to the effect that Jersey Central is a "public utility" within the meaning of the Federal Power Act, is in direct contradiction to the testimony of witnesses familiar with the facts as to the business done by the said company.

D. As to finding number (5):

There is no evidence in the proceedings had herein before this Commission, that Jersey Central Power & Light Company is a "public utility" within the meaning of Section 203(a) of the Federal Power Act, and the facts brought out in the record herein demonstrates that such company is not a "public utility"

within such meaning. There is, therefore, no evidence that New Jersey Power & Light Company, in acquiring 341,350 shares of the common capital stock of Jersey Central Power & Light Company, has violated the provisions of said Section 203(a) of the Federal Power Act.

V. Part II of the Federal Power Act, entitled "Regulation of Electric Utility Companies Engaged in Interstate Commerce", provides, *inter alia*, that Federal regulation of that part of the business of transmitting and selling electric energy for ultimate distribution to the public:

> "* * * which consists of the transmission of electric energy in interstate commerce and the sale of such energy at wholesale in interstate commerce is necessary in the public interest, such Federal regulation, however, to extend only to those matters which are not subject to regulation by the States." (Act, Section 201, Subdivision (a))

The said Part II further provides that:

> "The Commission shall have jurisdiction over all facilities for such transmission or sale of electric energy, but shall not have jurisdiction, except as specifically provided in this Part and the Part next following, over facilities used for the generation of electric energy or over facilities used in local distribution or only for the transmission of electric energy in intrastate commerce, or over facilities for the transmission of electric energy consumed wholly by the transmitter."

By the enactment of the above provisions, Congress has specifically limited the regulatory power delegated to your Honorable Commission over electric utility companies, and has excluded from the application of the Act Jer-

sey Central Power & Light Company; which company is, by uncontroverted testimony, shown to be, in all its affairs and matters, subject to regulation by the New Jersey Board of Public Utility Commissioners. Your Honorable Commission has been thereby specifically denied jurisdiction over the facilities of Jersey Central Power & Light Company; which said facilities are used only in generation of electricity at places within New Jersey, distribution and sale of such energy to consumers entirely located within New Jersey, and transmission of such energy at and to places located entirely within New Jersey. In finding that Jersey Central is a "public utility", your Honorable Commission has found that such company is subject to your regulatory power and jurisdiction. In making such finding, your Honorable Commission has erroneously construed the above recited limitations contained in the Federal Power Act.

Under the provisions of Section 213 (e):

> "The term 'public utility' when used in this Part or in the Part III means any person who owns or operates facilities subject to the jurisdiction of the Commission under this Part."

The above provision, read in connection with other provisions of the Act, including provisions set out in paragraph V above, clearly shows the intent and purpose of Congress not to include electric utility companies such as Jersey Central, which carries on only an intrastate business, within the meaning of the term "public utility" as used in the said Act. Your Honorable Commission in entering the Determination here complained of, and especially finding numbered (3), has, therefore, erroneously construed the said provision of the said Federal Power Act. In failing to follow the pertinent decisions of the United States Supreme Court which bear upon the proper

construction of said Act, as pointed out in arguments and briefs presented by your petitioner, your Honorable Commission has failed to follow controlling legal principles in construing said Act.

VI. As demonstrated by uncontradicted testimony in this proceeding, Jersey Central is concerned with, and carries on commerce in electric energy solely within the State of New Jersey and not to any border line of such State. Its said business, commerce and affairs are exclusively and entirely carried on within and appertain to the State of New Jersey and citizens and residents thereof. The power to regulate the business and affairs of Jersey Central, or any part thereof, has not been delegated to the United States or the Congress thereof, under the terms of Article One, Section 8, Subdivision 3, of the Constitution; but has been specifically reserved to the State of New Jersey by Amendment X of the said Constitution. In assuming to make the Determination here complained of, and especially finding number (3), your Honorable Commission has invaded the right of your petitioner to be free from Federal regulation, and has usurped the power of the State of New Jersey over your petitioner, which power is presently exercised by and through the New Jersey Board of Public Utility Commissioners. By reason of the generality of such Determination and finding, your Honorable Commission in effect requires your petitioner to comply with general orders of your Commission respecting public utilities, thus depriving your petitioner, Jersey Central, of its property without due process of law.

Wherefore, for the reasons herein set forth, your petitioner respectfully prays:

(a) That your Honorable Commission grant a rehearing in this proceeding;

(b) That upon such rehearing, or without further hearing, your Honorable Commission make an order abrogating the "Determination by the Commission" dated July 18, 1939 entered herein; and make and enter findings that Jersey Central Power & Light Company is not a "public utility", as defined by the Federal Power Act.

JERSEY CENTRAL POWER & LIGHT COMPANY
By H. D. POLHEMUS
Vice-President.

State of New Jersey
County of Monmouth *ss.:*

H. D. Polhemus, being duly sworn, deposes and says: That he is the Vice-President of Jersey Central Power & Light Company, the petitioner herein; that he has read the foregoing petition and knows the contents thereof; that the statements therein contained are true and correct to the best of his knowledge and belief.

H. D. POLHEMUS

Sworn to before me this 15th day of August, 1939.

F. Burney

CERTIFICATE OF SERVICE ON APPLICATION FOR REHEARING

I hereby certify that on the 15th day of August, 1939, there was served the foregoing document upon all parties of record in this proceeding by delivering a copy thereof in person to C. Edward Paxson in New York City.

Dated at Washington, D. C. this 16th day of August, 1939.

JOSEPH F. AUTENRIETH
By (Sig.) WILLIAM J. DUIKER

Of Counsel for:
Jersey Central Power and Light Company

XII.

ORDER DENYING PETITIONS FOR REHEARING

(Entered Sept. 15, 1939)

It appearing to the Commission that:

(a) On July 19, 1939, after due notice and hearing, and consideration of the entire record in the above entitled cause, including the briefs submitted by the respective parties, the Commission determined, among other things, that Jersey Central Power & Light Company was a "public utility" as defined by the Federal Power Act, and that New Jersey Power & Light Company had violated the provisions of Section 203(a) of said Act by the acquisition of 341,350 shares of the common capital stock of Jersey Central Power & Light Company, without first having secured an order of the Commission authorizing such acquisition;

(b) New Jersey Power & Light Company, on August 16, 1939, filed a petition alleging that the findings contained in such determination were not supported by the evidence; that Jersey Central Power & Light Company was not a "public utility" as defined by the Federal Power Act; that the determination was erroneous both in law and in fact, invaded rights guaranteed by Amendments V and X and Article I, Section 8, Subdivision 3 of the Constitution of the United States; and requested that a rehearing be granted in the above-entitled cause; that upon such rehearing, or without further hearing, the Commission find that Jersey Central Power & Light Company is not a "public utility" as defined by the Federal Power Act, and that the acquisition of 341,350 shares

of the common capital stock of Jersey Central Power & Light Company by New Jersey Power & Light Company was not an acquisition of the securities of a "public utility" within the meaning of Section 203(a) of the Federal Power Act;

(c) On August 16, 1939, Jersey Central Power & Light Company filed a petition containing allegations identical with those contained in the petition filed by New Jersey Power & Light Company, and requested that the Commission grant a rehearing in the above-entitled cause, and upon such rehearing, or without further hearing, make and enter an order abrogating the determination of July 18, 1939, and find that Jersey Central Power & Light Company is not a "public utility" as defined in the Federal Power Act;

The Commission *orders* that:

(1) The arguments and allegations contained in the petitions for rehearing filed on behalf of New Jersey Power & Light Company and Jersey Central Power & Light Company raise the same questions previously presented to the Commission and fully considered by it prior to the entry of the determination of July 18, 1939;

(2) The findings in the determination of July 18, 1939, are fully supported by the evidence of record in this cause and are hereby reaffirmed;

The Commission *finds* that:

The petitions for rehearing filed August 16, 1939, by New Jersey Power & Light Company and Jersey Central Power & Light Company, be and the same are, hereby denied.

By the Commission.
LEON M. FUQUAY,
Secretary.

XIII.

CERTIFICATION OF RECORD

To the Honorables, the Judges of the United States Circuit Court of Appeals for the Third Circuit:

The Federal Power Commission, reserving all rights to question the jurisdiction of your Honorable Court to review the determination of this Commission as prayed in the petitions for review filed in this cause, hereby certifies the transcript of the record upon which the determination complained of was entered, In the matter of New Jersey Power & Light Company and Jersey Central Power & Light Company, Docket No. IT-5518, and consisting of the following:

Order to Show Cause entered June 7, 1938; Answer of New Jersey Power & Light Company to Order to Show Cause filed June 24, 1938; Order Instituting Investigation and Setting Date of Hearing entered July 5, 1938; Order Postponing Hearing entered July 29, 1938; Order Postponing Hearing entered September 8, 1938; Designation of Examiner filed September 8, 1938; Petition to Intervene filed by Jersey Central Power & Light Company, September 27, 1938; Transcript of Hearings (including Exhibits) held September 27, 28, 29, 30, October 3, 4, 5, 6, 7 and 10, 1938; Determination by the Commission entered July 18, 1939; Application for Rehearing filed by New Jersey Power & Light Company, August 16, 1939; Application for Rehearing filed by Jersey Central Power & Light Company, August 16, 1939; Order Denying Petitions for Rehearing entered September 15, 1939.

By order of the Commission.

Attest:

LEON M. FUQUAY,
Secretary.

(Seal)

XIV.
STIPULATION

It is hereby stipulated and agreed that Allen E. Throop of 71 West Street, Borough of Manhattan, City and State of New York, be and he hereby is substituted in the place and stead of Travis, Brownback & Paxson, as attorneys for the petitioner New Jersey Power & Light Company and that an order to this effect may be entered without further notice.

NEW JERSEY POWER & LIGHT COMPANY,
Petitioner,
By E. L. TIRRELL,
Vice President
TRAVIS, BROWNBACK & PAXSON,
Attorneys for Petitioner
New Jersey Power & Light Company

State of New York,
County of New York, ss:

On the 27th day of May, 1940, before me personally came E. L. Tirrell, to me known, who being by me duly sworn did depose and say that he resides in the City of Bound Brook, State of New Jersey, that he is Vice President of New Jersey Power & Light Company, the corporation described in and who executed the foregoing instrument; that he knew the corporate seal of the said corporation; that the seal affixed to the said instrument was such corporate seal; that it was so affixed by the order of the Board of Directors of said corporation, and that he signed his name thereto as Vice President by like order.

WILLETT R. PORTER,
Notary Public, Queens County
Queens Co. Clerk's No. 1698, Reg. No. 572
Certificates Filed in
N. Y. Co. Clerk's No. 40, Reg. No. 2-P-24
Commission expires March 30, 1942

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